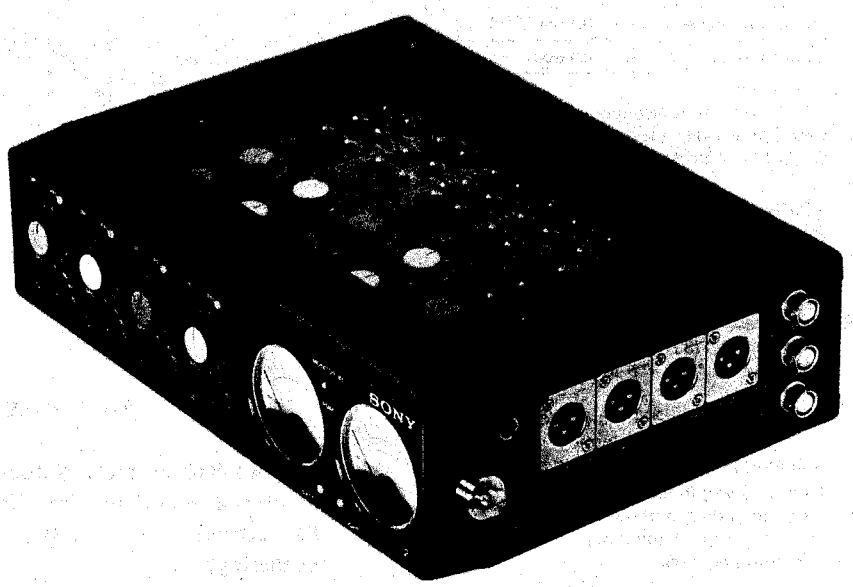
MX-P42

US Model
E Model

REVISED-1



PORTABLE AUTOMATIC MIXER

SPECIFICATIONS

1. Input/output circuits

1-1 Input circuits

PGM-inputs (0 dBs = 0.775 V)

Connector	Channel	Reference input level	Maximum input level	Input impedance	Balanced or unbalanced
MIC INPUT	4 channels	−70 dBs −60 dBs −50 dBs −40 dBs	−30 dBs −20 dBs −10 dBs 0 dB	Suitable for a low impedance microphone	Balanced
LINE INPUT	4 channels	−20 dBs +4 dBs	0 dBs +24 dBs	5 kilohms	Balanced

Monitor inputs

Connector	Channel	Reference input level	Maximum input level	Suitable load impedence	Balanced or unbalanced
MONITOR INPUT	2 channels	−20 dBs to +10 dBs	−4 dBs to +26 dBs	7 kilohms	Unbalanced

1-2 Output circuits

PGM outputs

Connector	Channel	Reference output level	Maximum output level	Suitable load impedance	Balanced or unbalanced
MAIN OUTPUT	2 channels	+4 dBm	+20 dBm	600 ohms	Balanced
SUB OUTPUT	2 channels	−20 dBm −64 dBm	−4 dBm −48 dBm	600 ohms	Balanced

Monitor outputs

Connector	Channel	Maximum output level	Balanced or unbalanced
PHONES	2 channels	10 mW/8 ohms	Unbalanced

2. Frequency response
   30 Hz – 20 kHz ±1.0 dB
3. Harmonic distortion (1 kHz)
   Less than 0.1%
   (ALC OFF, output level +4 dBm)
   Less than 0.3%
   (ALC OFF, output level +20 dBm)
   Less than 0.5%
   (ALC ON, output level +20 dBm)
4. Equivalent input noise
   Less than −125 dBs (20 Hz to 20 kHz, 150 ohm terminated, microphone sensitivity selector at −70 dBs position)
5. Impedance

5-1 Input circuits

MIC INPUT	Suitable for a low impedance microphone
LINE INPUT	More than 5 kilohms
MONITOR INPUT	More than 7 kilohms

5-2 Output circuits

MAIN OUTPUT, SUB OUTPUT
The value required to obtain reference level with suitable load connected

PHONES 43 ohms ±5%

6. Low-cut filter — Cut-off frequency 80 Hz/160 Hz
   Attenuation 18 dB/oct
7. High-cut filter — Cut-off frequency 11 kHz
   attenuation 18 dB/oct

— Continued on page 2 —

MICROFILM

SONY®

SERVICE MANUAL

2143

8. ALC characteristics

8-1 Static characteristics

See the figure "ALC static characteristics" as shown on right.

8-2 Dynamic characteristics

	Attack time	Recovery time
Compressor	Less than 50μ sec	0.1 sec/0.5 sec
Expander	Less than 50μ sec	0.1 sec

8-3 GR indicator operating level
+7 dB from the reference level

9. Built-in oscillator Frequency 1 kHz ±10%
Output level (to Main Output) +4 dBm

10. Power requirements
6 batteries size C (IEC designation LR14) (9 V)
External DC input (12 V, 350 mA)

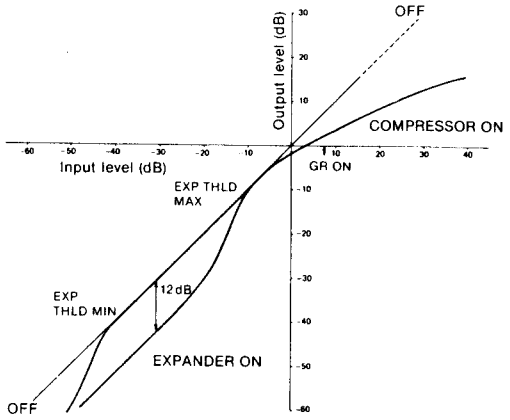
11. Battery life Approx. 3 hours of continuous operation (at 25°C) with alkaline batteries

12. Environmental temperatures
0°C to +50°C (32°F to 122°F) for operation
−20°C to +60°C (−4°F to +140°F) for storage

13. Dimensions Approx. 295 × 70 × 200 mm (w/h/d)
(11⅝ × 2⅞ × 7⅞ inches)
including projecting parts and controls

14. Weight Approx. 3.9 kg (8 lbs 10 oz) net, including batteries
Approx. 5.5 kg (12 lbs 2 oz) in shipping carton

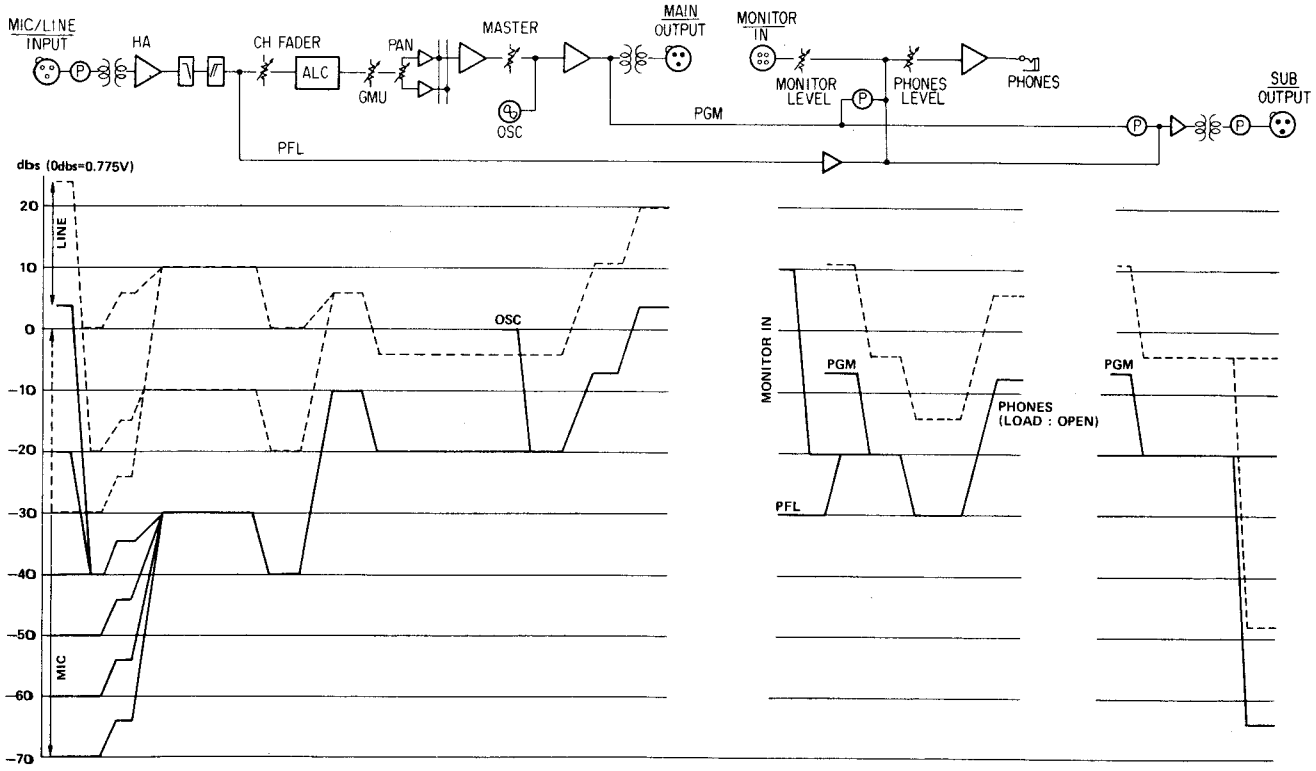
ALC static characterstics



FEATURES

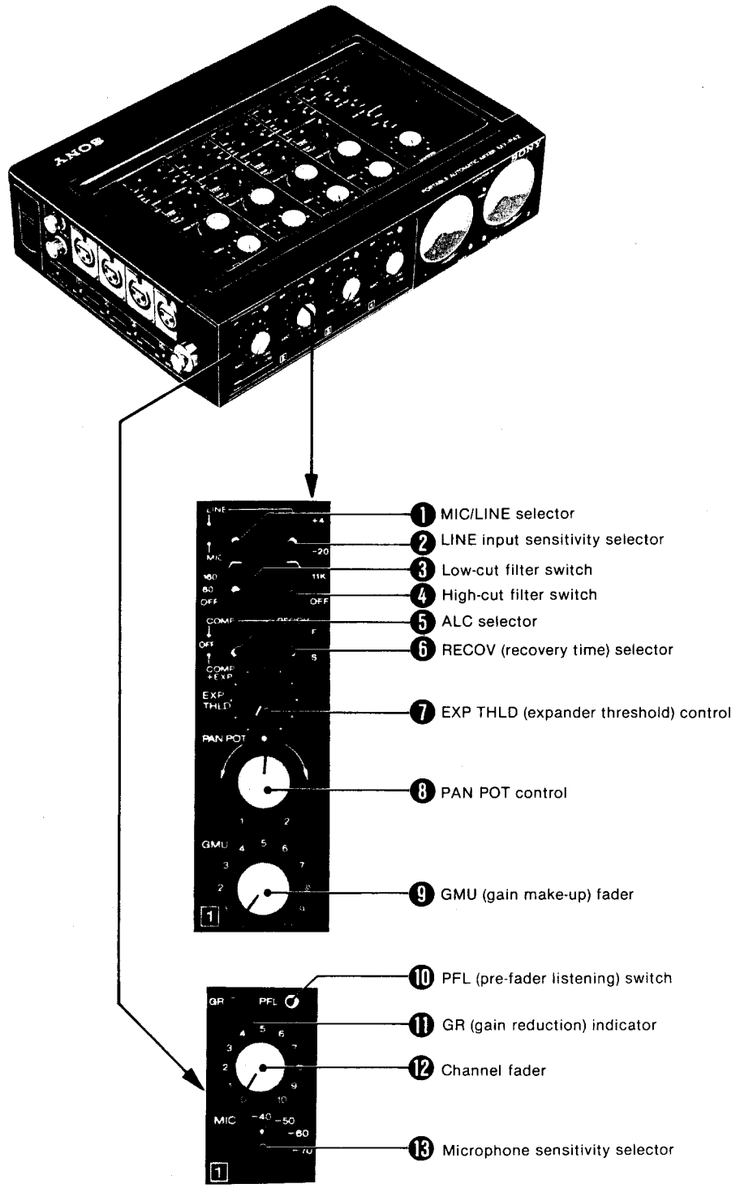
- The MX-P42 Portable Automatic Mixer has been developed especially for EFP (Electronic Field Production) and ENG (Electronic News Gathering).
- A key feature of the MX-P42 is the ALC (Automatic Level Control) on each of the four input channels, which allows optimum recording with minimum adjustment.
- The unit can interface directly with video equipment and allowing sound recorded on the VTR to be monitored.

LEVEL DIAGRAM



SECTION 1
OUTLINE

1-1. FUNCTION OF PARTS AND CONTROLS


1 MIC/LINE selector
2 LINE input sensitivity selector
3 Low-cut filter switch
4 High-cut filter switch
5 ALC selector
6 RECOV (recovery time) selector
7 EXP THLD (expander threshold) control
8 PAN POT control
9 GMU (gain make-up) fader
10 PFL (pre-fader listening) switch
11 GR (gain reduction) indicator
12 Channel fader
13 Microphone sensitivity selector

❶ MIC/LINE selector
Selects the input source—microphone input or line input.

❷ LINE input sensitivity selector
Sets the input sensitivity to −20 dBs or +4 dBs when the MIC/LINE selector ❶ is set to LINE.

❸ Low-cut filter switch
Two cut-off frequencies are selectable.
In the "160" position, all input signals below 160 Hz are attenuated at a 18 dB/octave rate, and in the "80" position, all signals below 80 Hz are attenuated at the same rate.
In the OFF position, the signal bypasses the low-cut filter circuit.

❹ High-cut filter switch
In the "11 k" position, all input signals above 11 kHz are attenuated at a 18 dB/octave rate.
In the OFF position, the signal bypasses the high-cut filter circuit.

❺ ALC selector
Sets the compressor and expander of the Automatic Level Control on and off.

Function / Selector setting	Compressor	Expander
COMP	ON	OFF
OFF	OFF	OFF
COMP+EXP	ON	ON

❻ RECOV (recovery time) selector
Selects the recovery time of the compressor and expander.
F: 0.1 sec.
S: 0.5 sec.

❼ EXP THLD (expander threshold) control
The level at which the expander activates is continuously adjustable with this control. When the control is fully turned to the right, the threshold level is set to −10 dB from the reference input level and when it is turned fully to the left, the level is set to −40 dB.

❽ PAN POT control
This permits panning of the incoming signal between output channels 1 and 2. The center click position positions the sound image in the center.
The panning ratio is continuously adjustable on the sine-cosine curve.

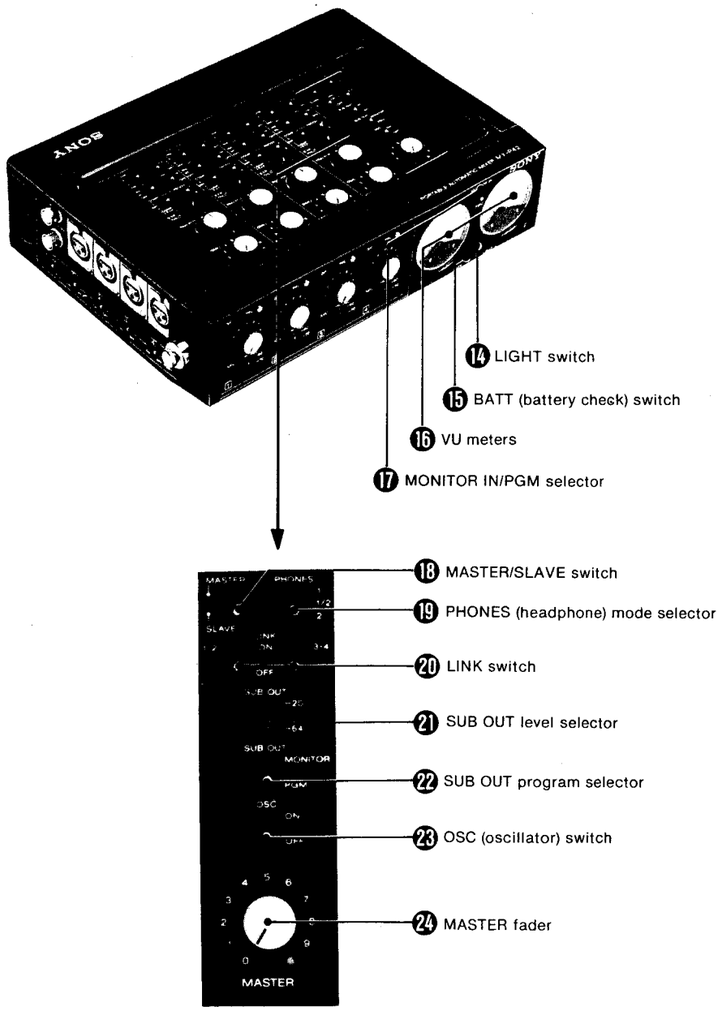
❾ GMU (gain make-up) fader
Adjusts the output level of the ALC of each channel.
The blue dot indicates the reference level.
The gain margin from the reference level is 10 dB.

❿ PFL (pre-fader listening) switch
When the switch is depressed, the input signal from the corresponding channel can be monitored without affecting the main signal flow.
It is possible to depress switches of several channels at the same time.
See the figure "Signal Flow in the MX-P42" on page 6.

⓫ GR (gain reduction) indicator
While the compressor is activated, this indicator lights up if the input signal level exceeds the reference level by 7 dB.

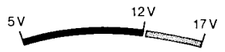
⓬ Channel fader
Adjusts the input level to the ALC system.
The blue dot indicates the reference level.
The gain margin from the reference level is 10 dB.

⓭ Microphone sensitivity selector
With the MIC/LINE selector ❶ at the MIC position, you can select the sensitivity of the microphone input: −70 dBs, −60 dBs, −50 dBs, or −40 dBs.



⓮ LIGHT switch
When this switch is pressed, the VU meters light up for about 10 seconds.

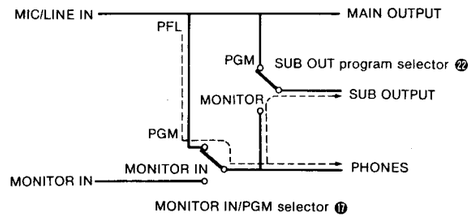
⓯ BATT (battery check) switch
When this switch is depressed, the voltage of the batteries or of the external dc power is shown on the VU meter for channel 1. When the pointer deflects only around the left end of the scale, the internal batteries will be soon exhausted.
When the pointer deflects over the right end of the scale, the external power has been disconnected by the protection circuit.



⓰ VU meters
Show the input level of the signal selected by the MONITOR IN/PGM selector ⓱. The left meter is for channel 1 and the right meter is for channel 2. When the Main Output level is at +4 dBm, these VU meters deflect to 0 VU.
When the BATT switch ⓯ is depressed, the meter for channel 1 functions as a battery check meter.

⓱ MONITOR IN/PGM selector
Selects the monitor outputs.
At the MINITOR IN position, the external signal from the MONITOR INPUT connector is fed through the monitor outputs without affecting the main signal flow. At the PGM position, the same signal as that fed to MAIN OUT or the PFL signal, depending on whether the PFL switch is depressed or not, is fed out to the monitor outputs. When this switch is set to MINITOR IN, the PFL switch does not function.
When monitoring, it is important to remember to set the SUB OUT program selector ㉒ to the MONITOR position.
See the figure below.

Signal Flow in the MX-P42

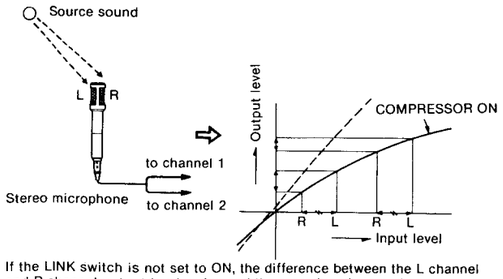


⓲ MASTER/SLAVE switch
Use this switch when connecting more than two MX-P42s in parallel to increase the number of inputs.
For details see page 12.

⓳ PHONES (headphone) mode selector
This switch allows 3 modes of headphone monitoring.
When the switch is set to 1, output channel 1 can be monitored through both channels of the headphones, and when it is set to 2, output channel 2 can be monitored.
When the switch is set to 1/2, output channel 1 can be monitored through the left channel of the headphones and output channel 2 through the right channel.

⓴ LINK switch
This switch stabilizes the stereo image produced by a stereo microphone. When this switch is set to ON, the gain make-up volume of channels 1 and 2 is simultaneously controlled with the fader for channel 1 and the gain make-up volume of channels 3 and 4 with the fader for channel 3.
When the ALC is engaged and when this switch is set to ON, the compression and expansion of channels 1 and 2 (or channels 3 and 4) maintain the same relationship when the input level is varied, so that the output level from the ALC of the two channels always remains same and the stereo image is stable.

Example:



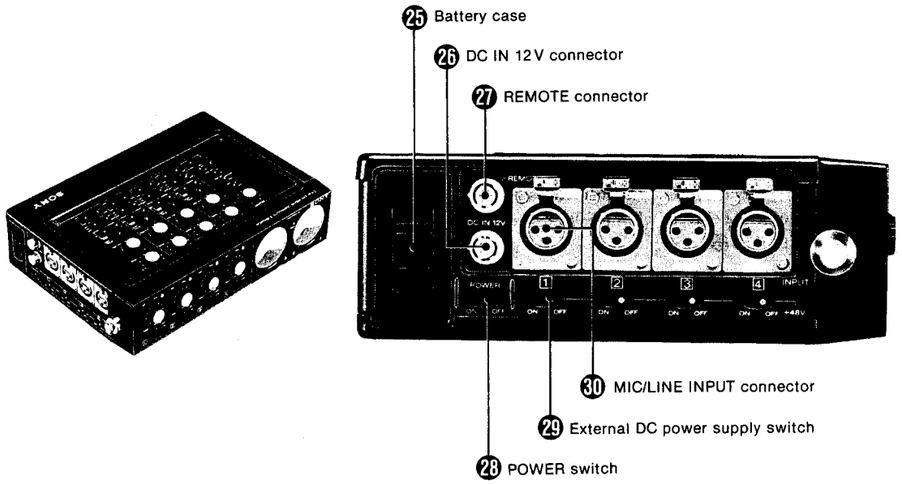
If the LINK switch is not set to ON, the difference between the L channel and R channel output level varies and the reproduced stereo image moves when the input level varies.

㉑ SUB OUT level selector
Selects the output level of the SUB OUT connectors: −20 dBm or −64 dBm.

㉒ SUB OUT program selector
When this switch is set to MONITOR, the monitor signal selected by the MONITOR IN/PGM selector ⓱ and the PFL switch is fed to SUB OUT; when it is set to PGM, the same signal as that fed to MAIN OUT is fed to SUB OUT. See the figure "Signal Flow in the MX-P42".

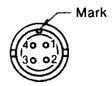
㉓ OSC (oscillator) switch
When this switch is turned on, a 1 kHz sinewave at the reference level is fed to the MAIN and SUB outputs.

㉔ MASTER fader
Adjusts the overall signal output level.
The reference level is indicated by a blue dot.


25 Battery case
26 DC IN 12 V connector
27 REMOTE connector
30 MIC/LINE INPUT connector
29 External DC power supply switch
28 POWER switch

㉕ Battery case

㉖ DC IN 12 V connector (SMC9-4S)
To power this unit by an external 12 volt power supply. For the connection, use the supplied connecting cord (50 cm long).
If the external power line voltage exceeds 17 volts, a protection circuit disconnects the external power. When the voltage has returned to 17 V or less, the external power supply connection is automatically restored.

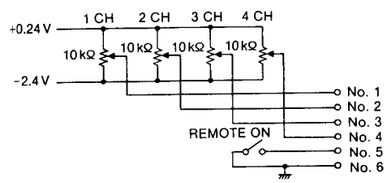


No. 1: DC IN 12 V
No. 2: NC
No. 3: NC
No. 4: GND

㉗ REMOTE connector (SMC9-6S)
By providing a control signal from a remote control circuit to this connector, you can remotely control the gain make-up.

No. 1: 1 CH
No. 2: 2 CH
No. 3: 3 CH
No. 4: 4 CH
No. 5: Remote control enable
No. 6: GND

Remote control circuit

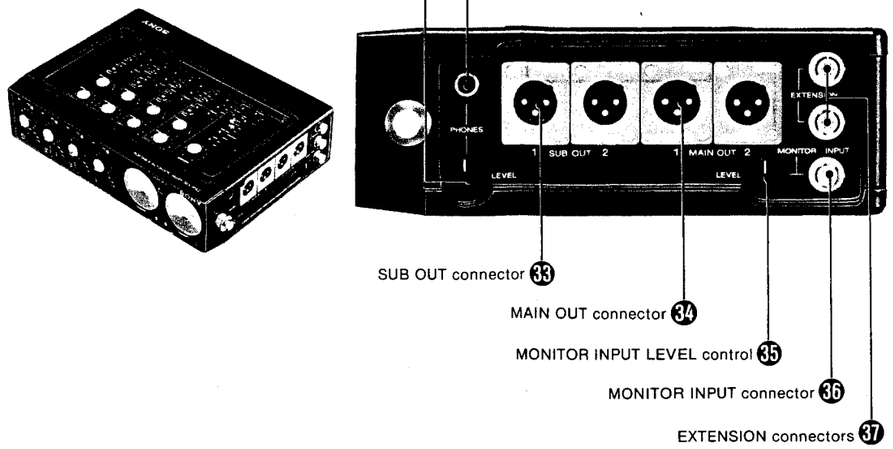


㉘ POWER switch
Turns the unit on or off.

㉙ External DC power supply switch
This switch is used for phantom powering.
Set to ON when connecting a phantom powered condenser microphone to the MIC/LINE INPUT connector.
48 V±6 V, 2 mA (max) is supplied to each channel.
This switch is also equipped with a current protection circuit which automatically shuts off current exceeding about 10 mA/ch. By disconnecting the microphone cable, the phantom powering circuit is automatically restored.

㉚ MIC/LINE INPUT connectors (Cannon XLR-3-31 type)

No. 1: GND
No. 2: Hot
No. 3: Cold



㉛ PHONES LEVEL control
Adjusts the headphones volume.

㉜ PHONES jack
Accepts any headphones with a stereo phone plug.

㉝ SUB OUT connector
(Cannon XLR-3-32 type)
The signal selected by the SUB OUT program selector ⑱ is fed out here.

No. 1: GND
No. 2: Hot
No. 3: Cold

㉞ MAIN OUT connector
(Cannon XLR-3-32 type)
The main output signal is fed out here.

㉟ MONITOR INPUT LEVEL control
Adjusts the monitor input level. When this control is fully turned to the right, 0 dB is obtained and when fully to the left, the level is reduced to −30 dB.

㊱ MONITOR INPUT connector (SMC9-4S)

No. 1: NC
No. 2: MONITOR INPUT 1
No. 3: MONITOR INPUT 2
No. 4: GND

Using the supplied connecting cord and an optional adapter, connect this connector to the VTR to monitor the sound recorded on the VTR.

㊲ EXTENSION connectors (SMC9-6S)
For cascade connections.

1-2. CIRCUIT DESCRIPTION

I. ALC Circuit Block Diagram

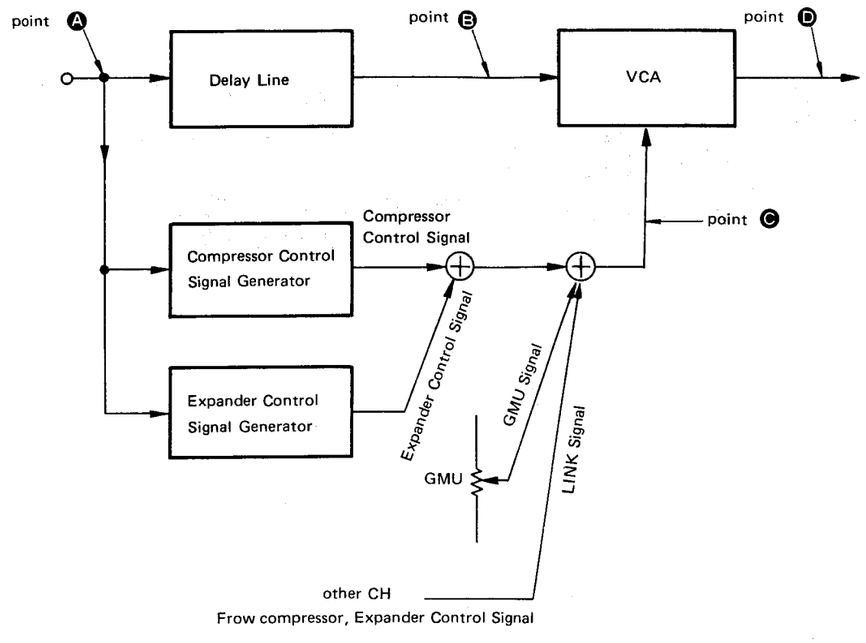


Fig. 1

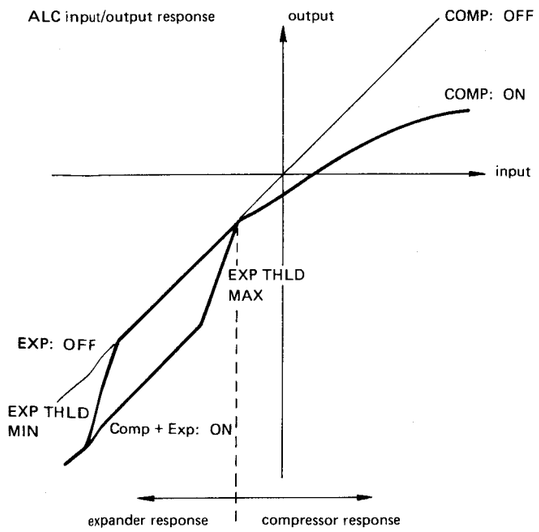


Fig. 2

I. ALC Circuit Block Diagram

The ALC input/output response is indicated by the curve of the thick line in the graph at the left.
The compressor response is obtained by controlling the VCA with the DC signal generated in the compressor control signal generator shown in Fig. 1.
The expander response is obtained by controlling the VCA with the DC signal generated in the expander control signal generator.

II. ALC Circuit Block Operation

1. Delay Line

On the ALC circuit block diagram (Fig. 1), in relation to the signal at point A, the rise of the signal at point C is delayed several μSec by the rectifier circuit. As a result, the first several waves of the signal at point D after its rise are not compressed, causing overshoot. To prevent this, a delay line is put into the signal system to create a delay of about 50μSec until the signal at point C rises.

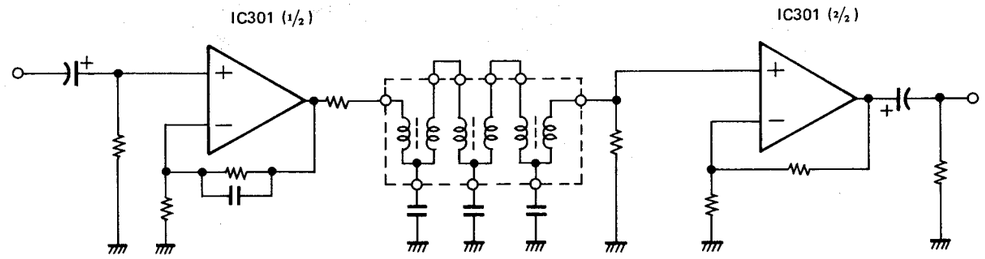


Fig. 3

- Waveforms

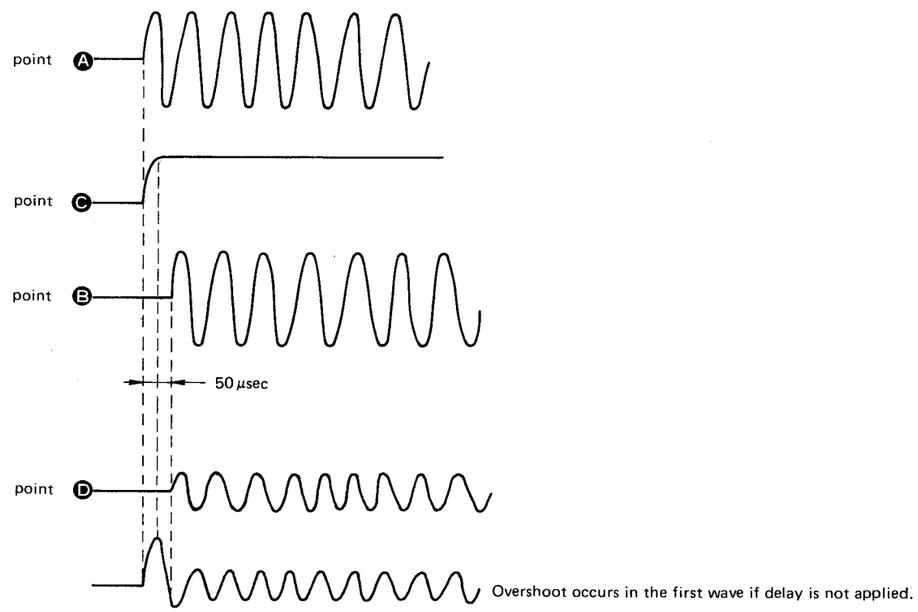


Fig. 4

2. VCA (Voltage Controlled Amplifier)

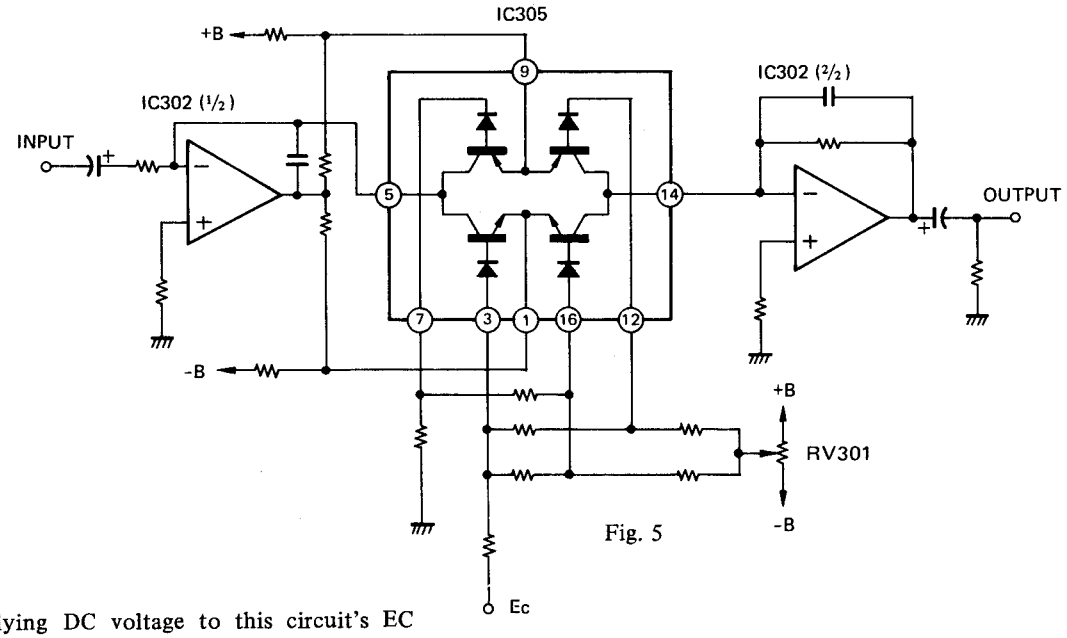


Fig. 5

By applying DC voltage to this circuit's EC terminal, the input-output gain is changed. The gain change is 1 dB/6 mV. RV301 is a variable resistor which makes the DC voltage flow to the signal system minimum when the DC voltage changes time-wise.

3. Compressor Control, Expander Control Signal Generators

The diagram below shows more detailed blocks of the compressor control and expander control signal generators.

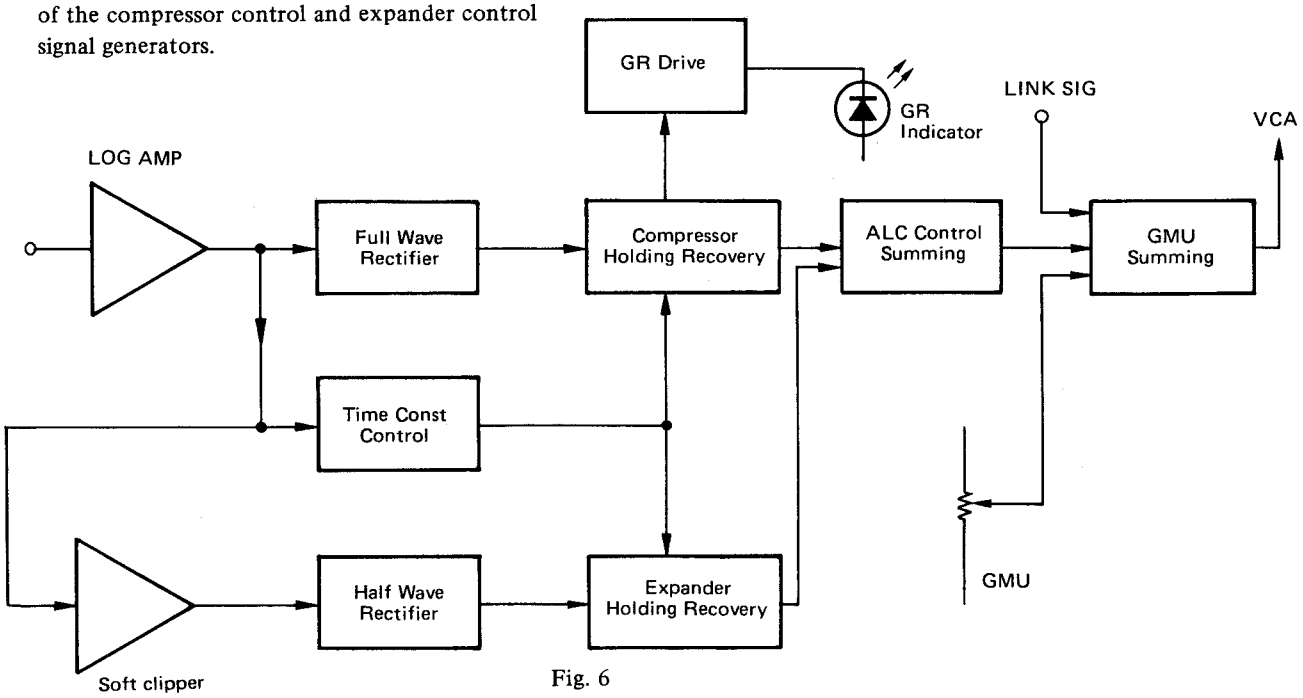


Fig. 6

(1) LOG Amp

In order to generate the control voltage required to obtain the compressor curve, an AC signal is non-linear amplified.

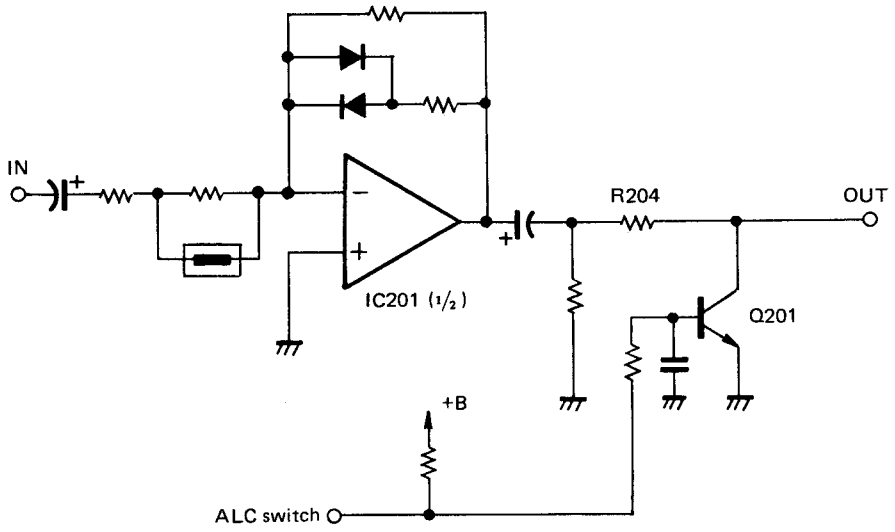


Fig. 7

The input/output responses of the LOG amp and output waveforms are shown below.

Input Level (f: 1 kHz)	Output Waveform
-30 dBs	75 mV GND level sine wave
-10 dBs	420 mV soft clip wave
+10 dBs	750 mV soft clip wave

Fig. 8

Q201 turns the signal obtained at the LOG amp on and off. -5.4 V is applied to its base when the ALC switch is at COMP or COMP + EXP, and +0.6 V is applied when it is off.

(2) Full Wave Rectifier

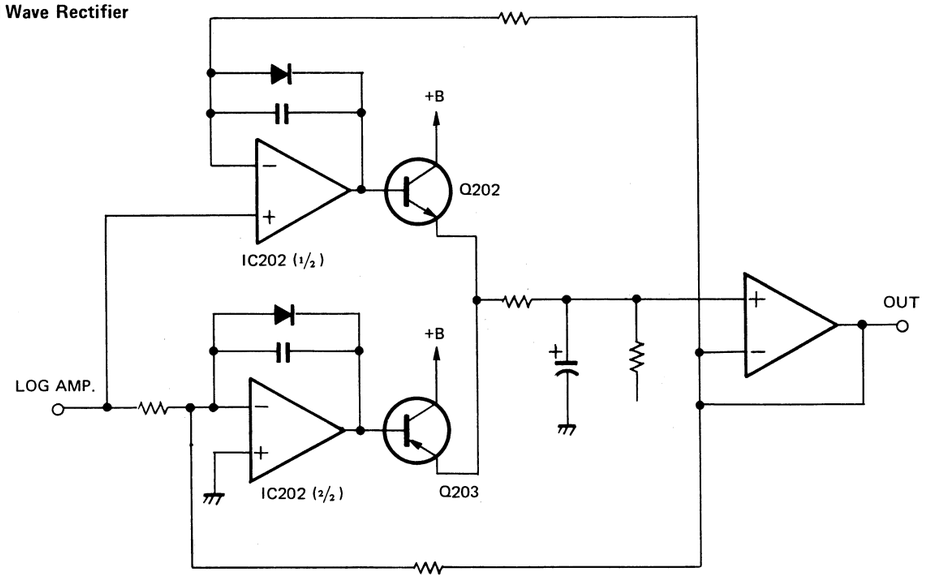


Fig. 9

This rectifier circuit changes the AC signal obtained by the LOG amp to DC. This DC signal controls the VCA and obtains the compressor response. The ideal diode in this circuit makes it a full wave rectifier circuit which can rectify even very minute signals. IC202 (1/2) and Q202 rectify the positive side half cycle and IC202 (2/2) and Q203 rectify the negative side half cycle.

(3) Compressor Holding Recovery Circuit

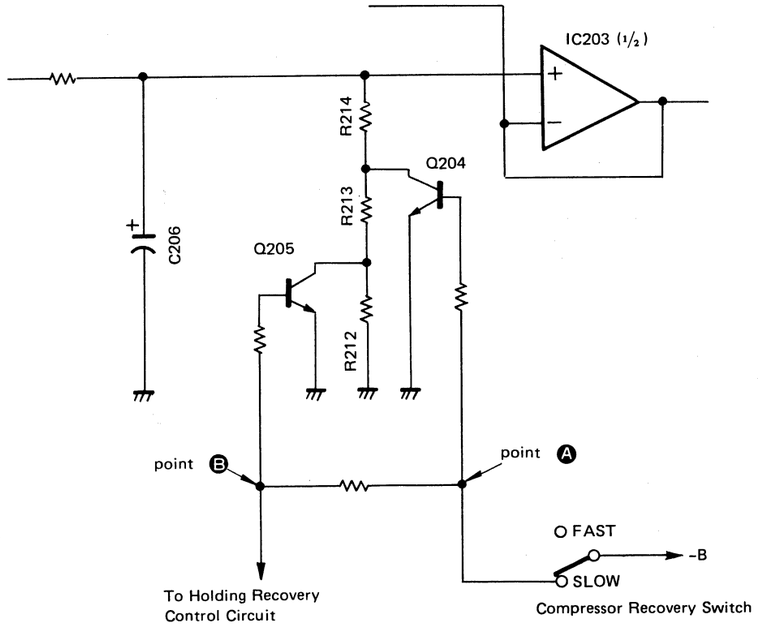


Fig. 10

This circuit (fig. 9) determines the compressor recovery time.

① When the compressor recovery switch is at SLOW, −6V is applied to point Ⓐ and Q204 is off. At point Ⓑ, +5 V or −5 V is applied according to the input signal level from the holding recovery control circuit (explained later), to turn Q205 on and off. In this case, because −6 V is constantly applied to point Ⓐ, Q204 remains off even when point Ⓑ potential changes between +6 V/−6 V. Therefore, when the tone burst waveform is applied from LOG amp input, IC203 (1/2) output voltage changes as follows.

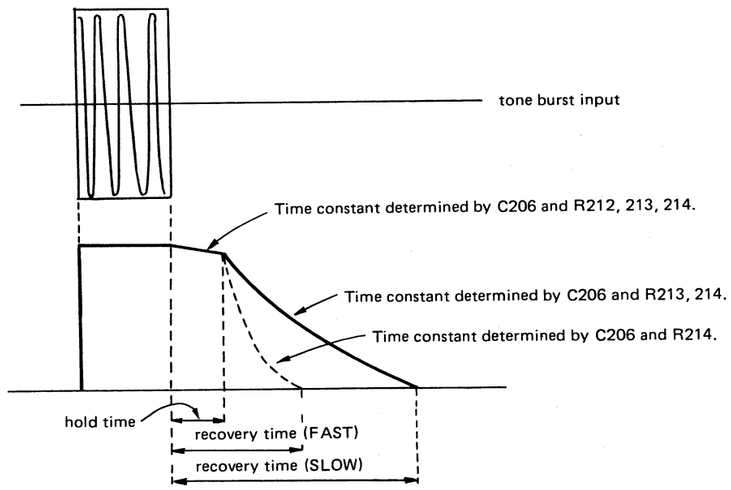

tone burst input
Time constant determined by C206 and R212, 213, 214.
Time constant determined by C206 and R213, 214.
Time constant determined by C206 and R214.
hold time
recovery time (FAST)
recovery time (SLOW)

Fig. 11

② When the compressor recovery switch is at FAST, voltage from the compressor recovery switch is not applied to point Ⓐ, so Q204 and Q205 are turned on and off by point Ⓑ voltage, which is the time constant control circuit output voltage. The output voltage of IC203 (1/2) in this case is shown by the dotted line in the above figure.

4. Holding Recovery Control Circuit

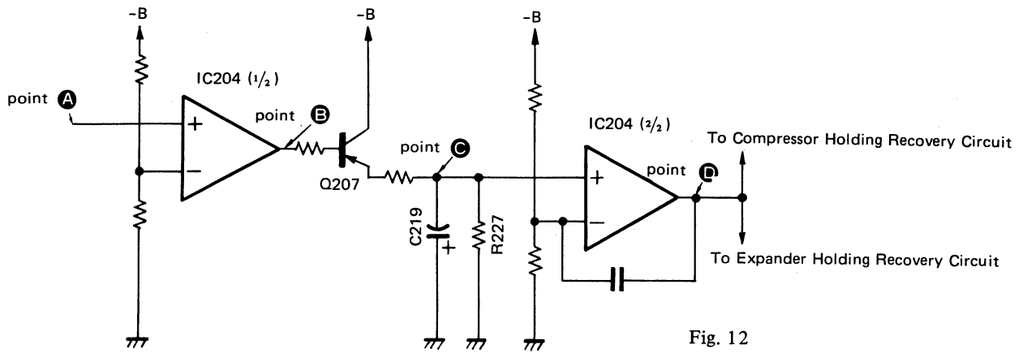


Fig. 12

This generates signals to drive the compressor holding recovery circuit and expander holding recovery circuit.

The waveforms for points Ⓐ, Ⓑ, Ⓒ, Ⓓ when the tone burst signal is applied from LOG amp input are as follows.

Fig. 13

5. Soft Clipper

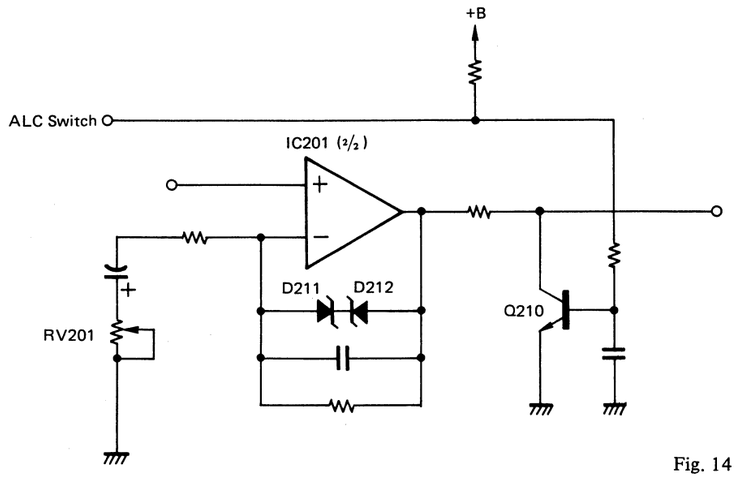


Fig. 14

This is an amp which establishes expander operation level. The operation level is determined by RV201. At this time, the gain of the positive phase amp, formed by IC201 (2/2), is large, so the output is easily hard clipped. D211 and D212 limit amplitude to prevent jumping into the signal system caused by the hard clipping.

Q210 is a switching transistor to turn the expander control signal on/off. When the ALC switch is at COMP or OFF, +0.6 V is applied to its base, and -5.4 V is applied for COMP + EXP.

6. Half Wave Rectifier

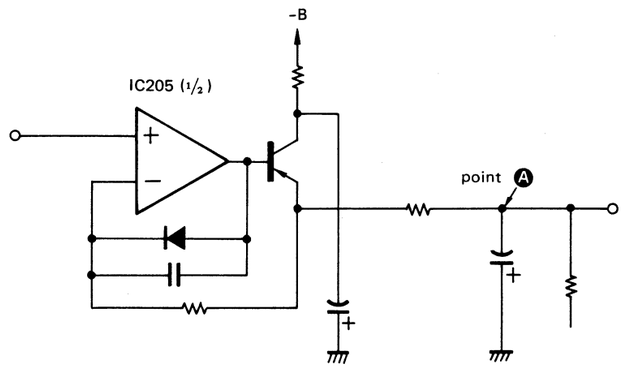


Fig. 15

This circuit rectifies the AC signal obtained at the soft clipper to a negative DC signal. The ideal diode circuit allows rectification of even very minute signal levels.

The input signal level at the LOG amp and DC signal level at point Ⓐ are as follows. (When RV201 resistance value is maximum.)

Input signal level	DC signal level
−40 dbs	−260 mV
−50 dbs	−240 mV
−60 dbs	−180 mV
−70 dbs	−70 mV

7. Expander Holding Recovery Circuit

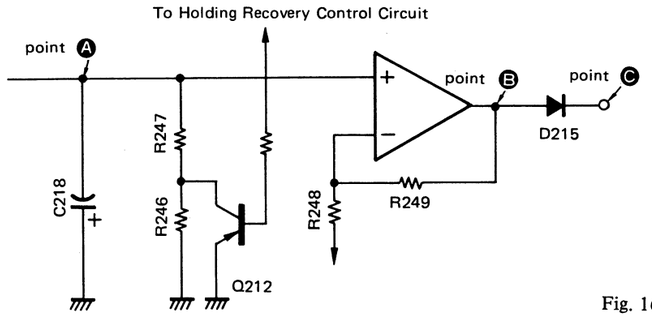


Fig. 16

i) Static Response

When the signal is not input to LOG amp, positive DC voltage is generated at point B by R248 and R249.

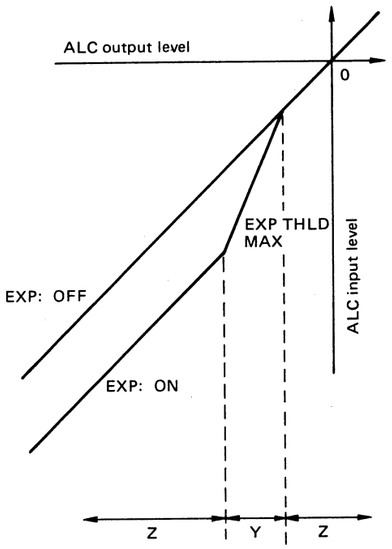


Fig. 17

① X Area

In this area, negative DC voltage is generated at point A by the half wave rectifier. This negative voltage is added to point B positive voltage via IC205, but since the result is less than +0.6 V, it does not go over switching diode D215 potential barrier, and control voltage is not generated at point C

② Y Area

The addition at point B results in more than 0.6 V, so control voltage is generated at point C. This control voltage increases relative to the input signal level and stabilizes at around 0.7 V. (Control voltage increases as input signal level drops.)

③ Z Area

In this area, point C voltage stabilizes at 0.7 V

ii) Dynamic Response

±5 V of DC voltage is applied to Q212 from the holding recovery control circuit, and expander recovery time is switched according to signal level.

In other words, when a small signal is input, the voltage generated from the holding recovery control circuit is negative, and Q212 goes on, delaying the time constant. For a large signal, Q212 goes off and the time constant is fast. The voltage waveforms for input of a tone burst wave are shown below.

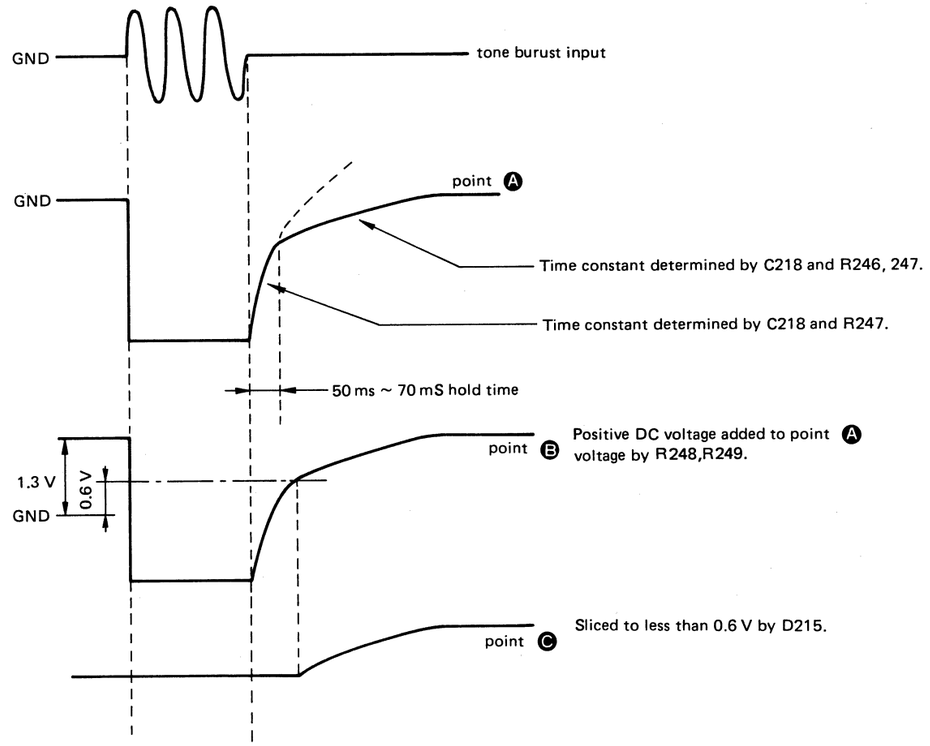

GND
tone burust input
GND
point A
Time constant determined by C218 and R246, 247.
Time constant determined by C218 and R247.
50 ms ~ 70 mS hold time
point B
Positive DC voltage added to point A voltage by R248,R249.
1.3 V
0.6 V
GND
point C
Sliced to less than 0.6 V by D215.

Fig. 18

8. ALC Control Summing Circuit

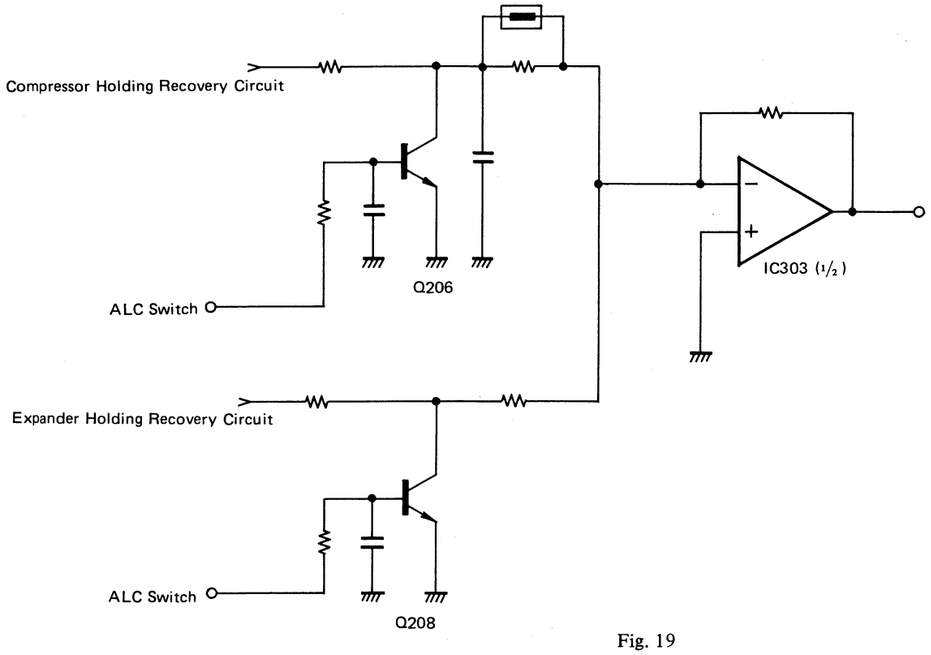


Fig. 19

This circuit adds the DC voltage (compressor control switch) necessary to obtain compressor response and the DC voltage (expander control signal) necessary to obtain expander response.

Q206 and Q208 are transistor switches which turn the compressor control signal and expander control signal, respectively, on and off.

When the ALC switch is at COMP, −5.4 V is applied to Q206 base and +0.6 V to Q208 base. For COMP + EXP., −5.4 V is applied to both Q206 and Q208 bases.

9. GMU Summing Circuit

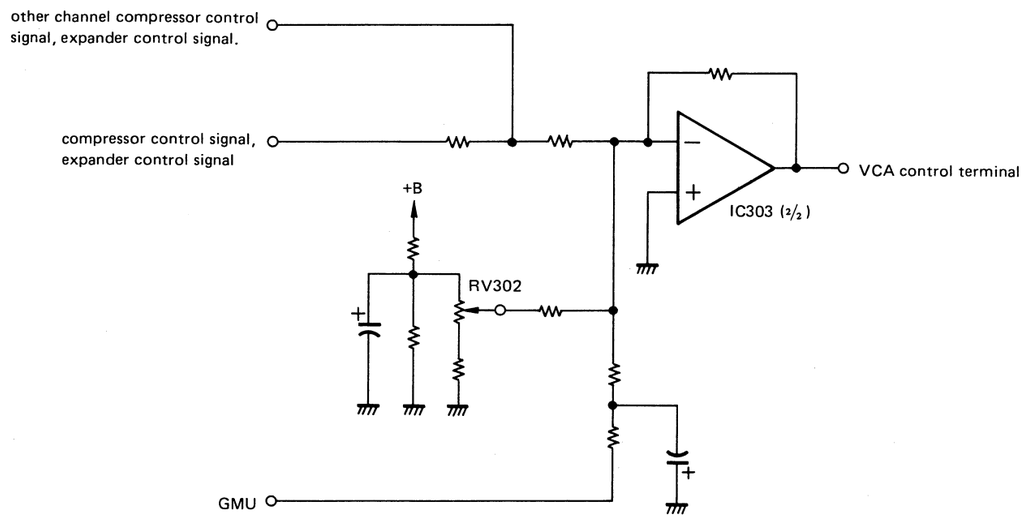


Fig. 20

Adds the compressor control signal, expander control signal and VCA control signal from the GMU VCA gain adjustment voltage (RV302), other channel compression control signal, expander control signal (only for LINK SW ON).

10. GR Drive Circuit

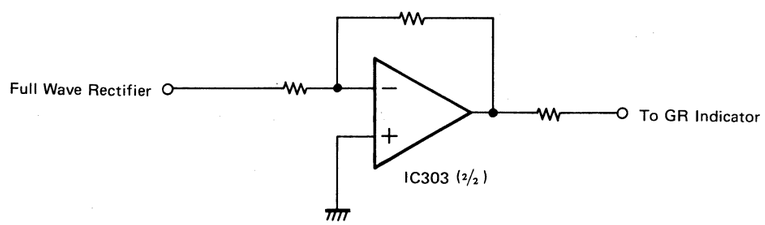
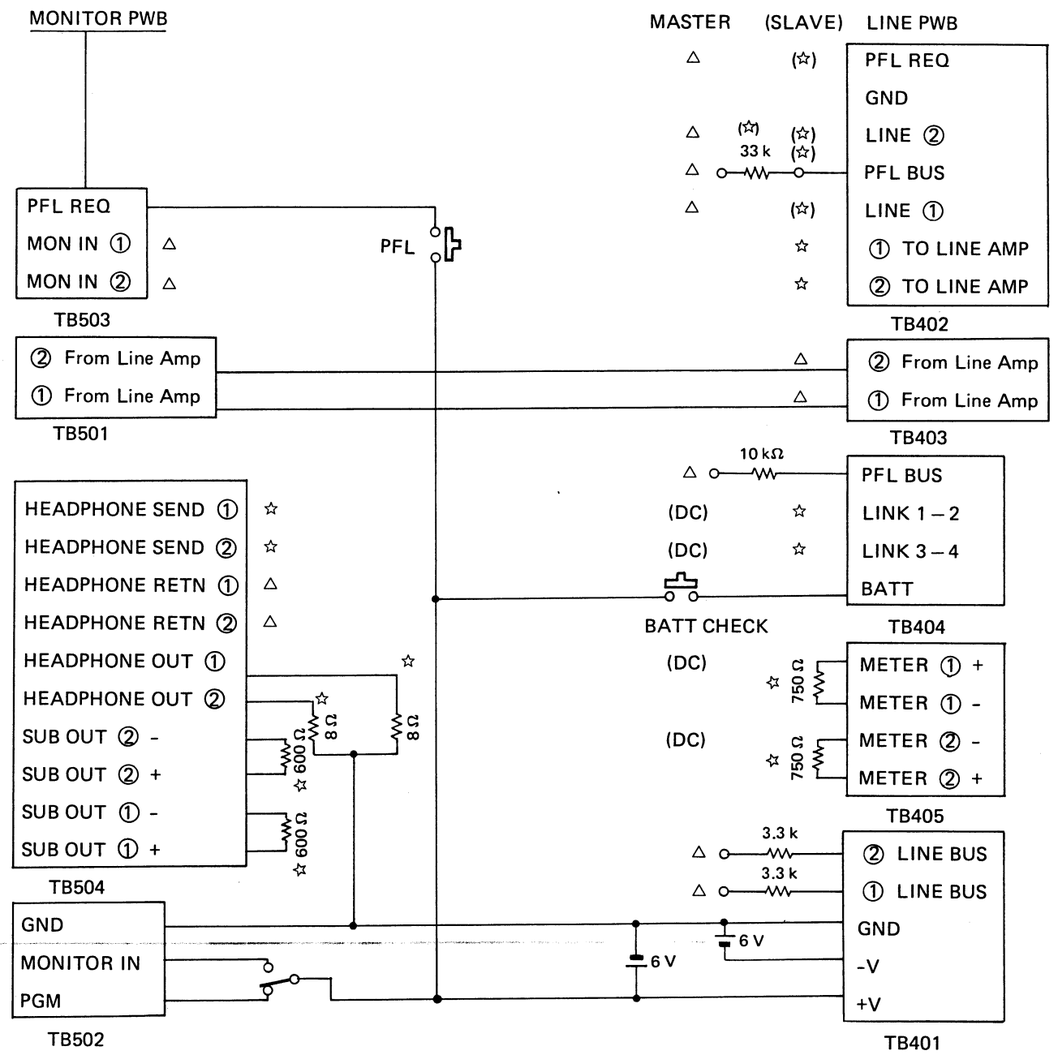


Fig. 21

Amplifies full wave rectifier output voltage and drives GR indicator.

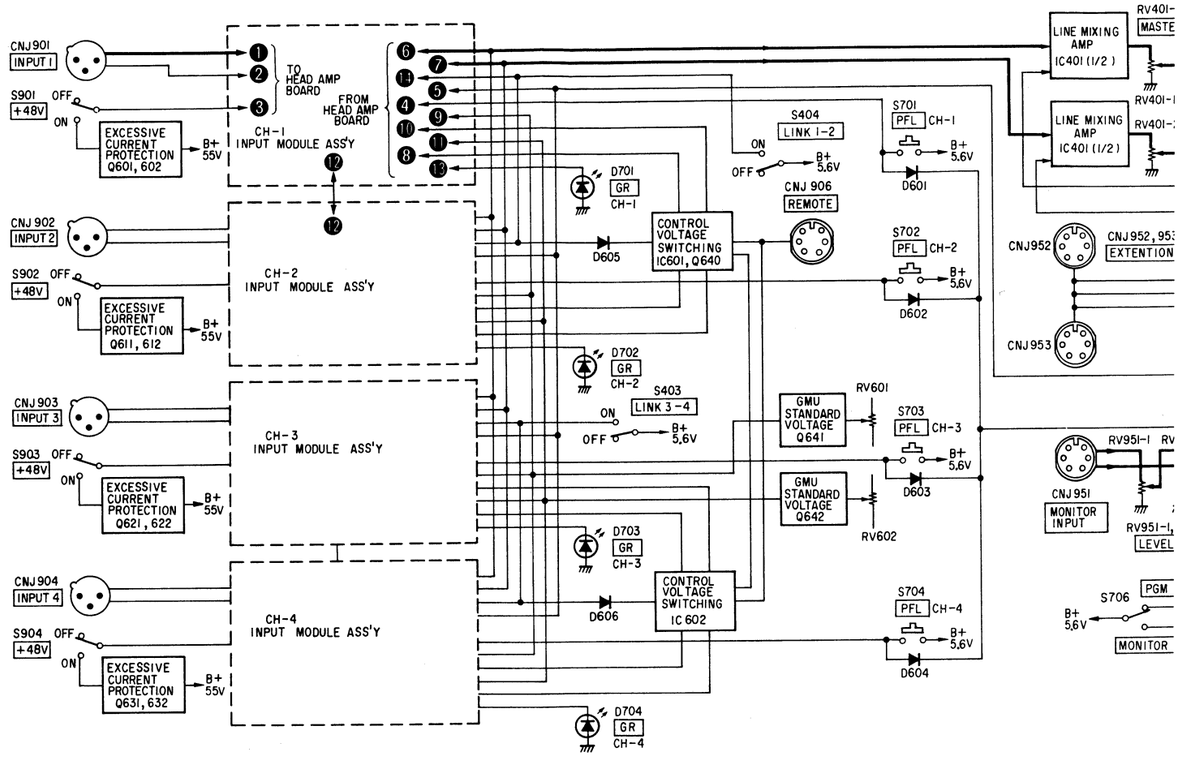
MASTER MODULE CHECK CONNECTION

△ : signal input terminal
☆ : signal output terminal



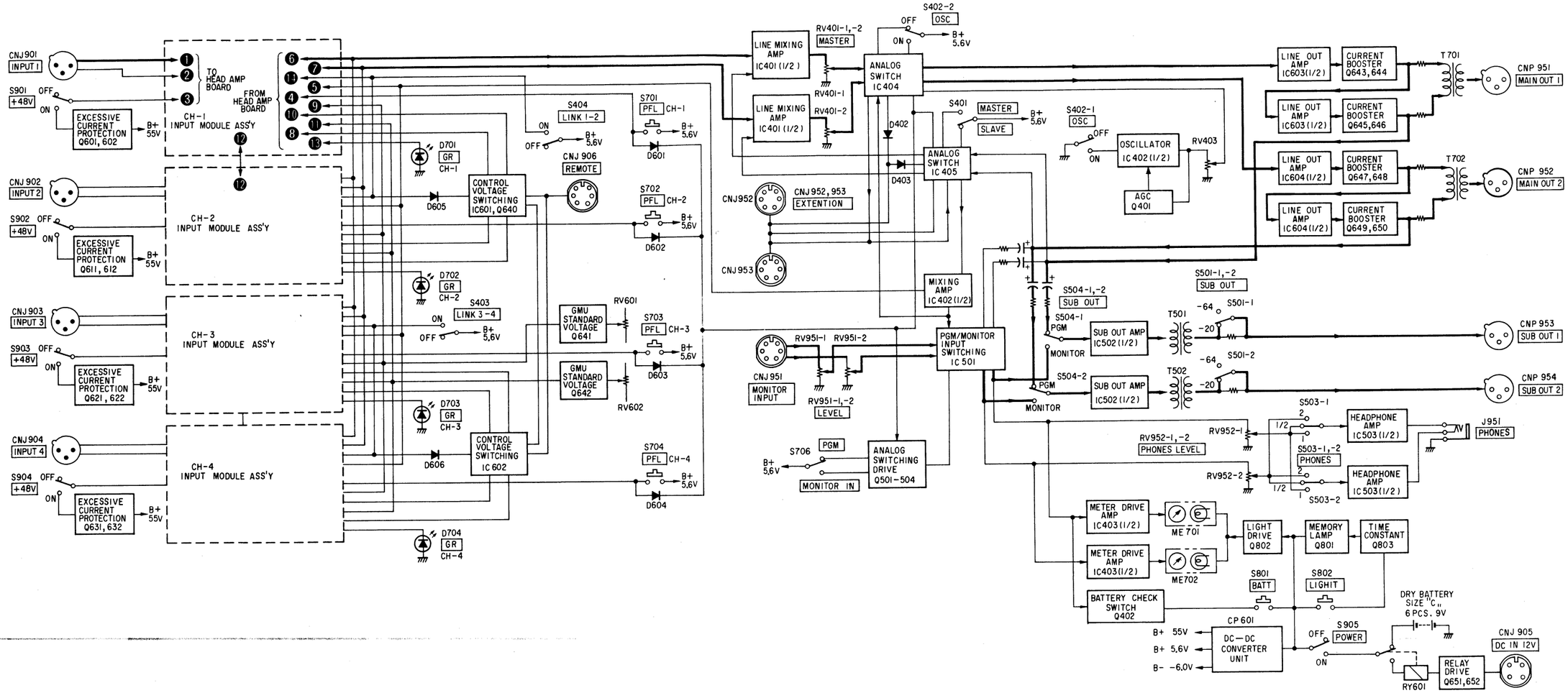
1-3. BLOCK DIAGRAMS

– master module –

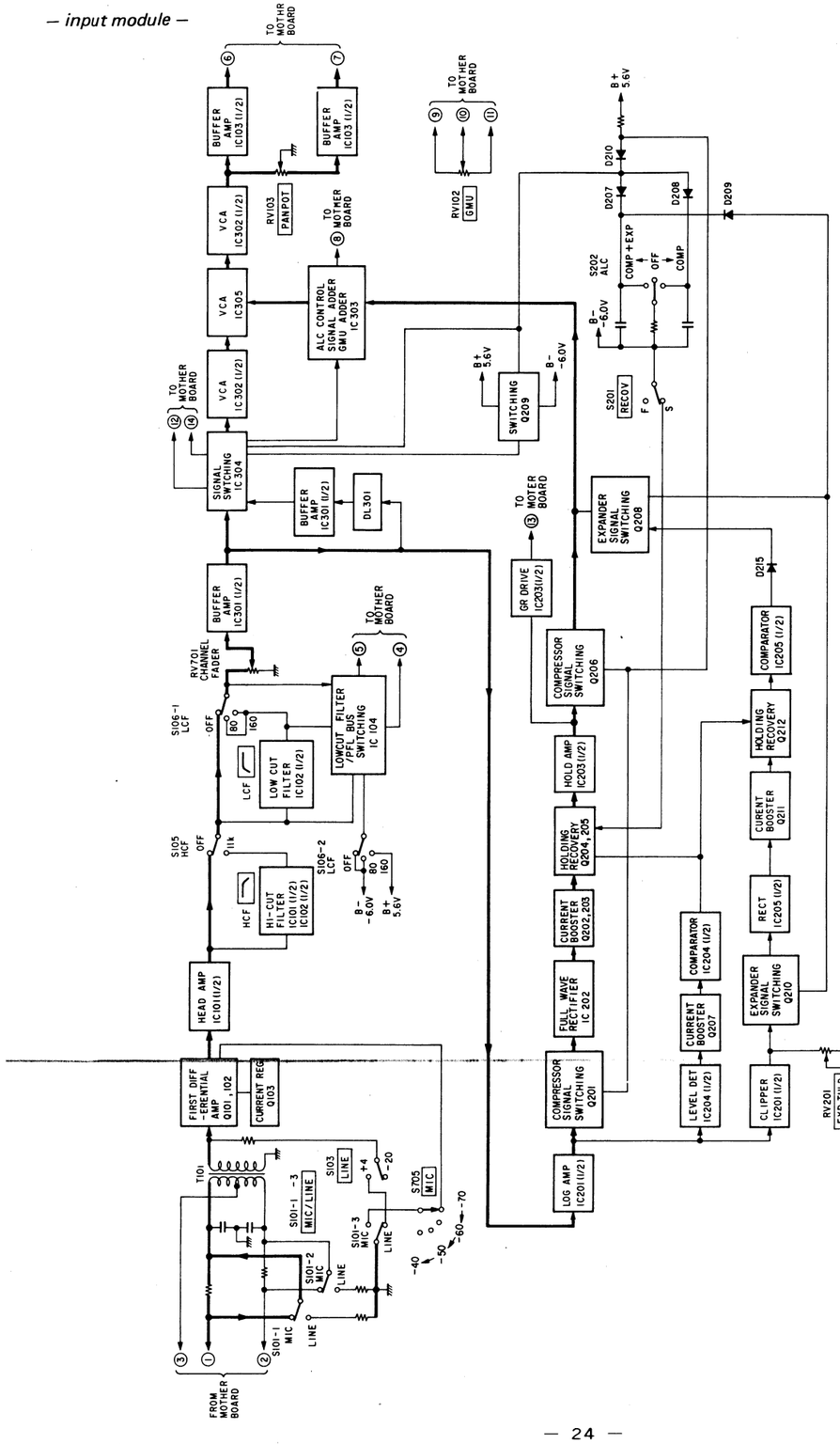


1-3. BLOCK DIAGRAMS

– master module –



— input module —

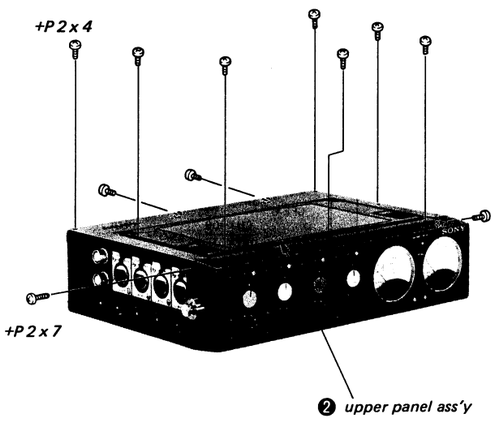


SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

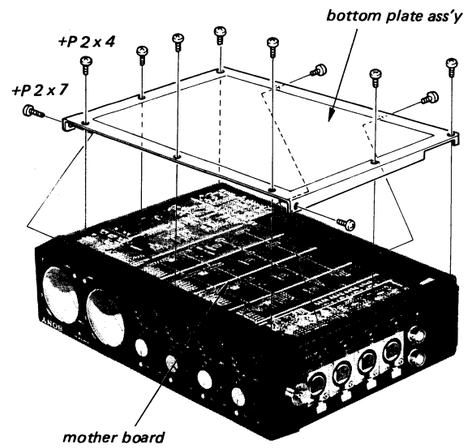
UPPER PANEL ASS'Y

❶ *Remove eleven screws (+P 2 x 4 ... ten/+P 2 x 7 ... one)*



BOTTOM PLATE ASS'Y

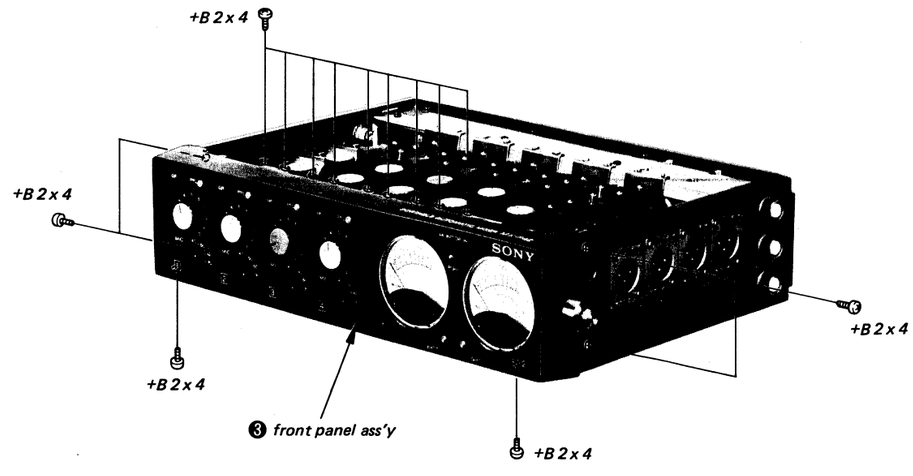
❶ *Remove eleven screws. (+P 2 x 4 ... ten/+P 2 x 7 ... one)*



FRONT PANEL ASS'Y

❶ *Remove the upper panel ass'y and the bottom plate ass'y*

❷ *Remove fifteen screws. (+B 2 x 4)*

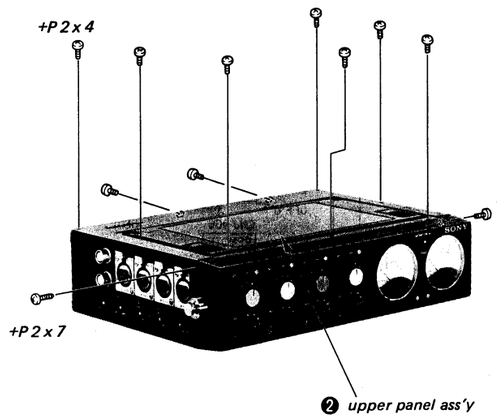


SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

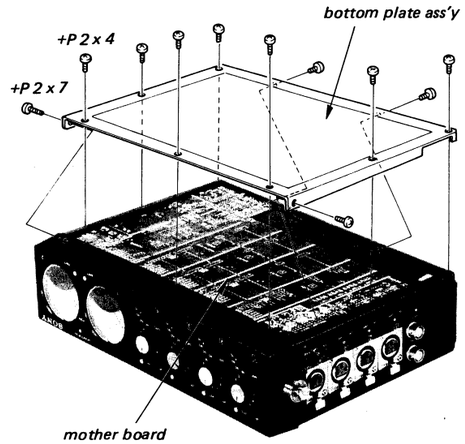
UPPER PANEL ASS'Y

❶ *Remove eleven screws (+P 2 x 4 ... ten/+P 2 x 7 ... one)*



BOTTOM PLATE ASS'Y

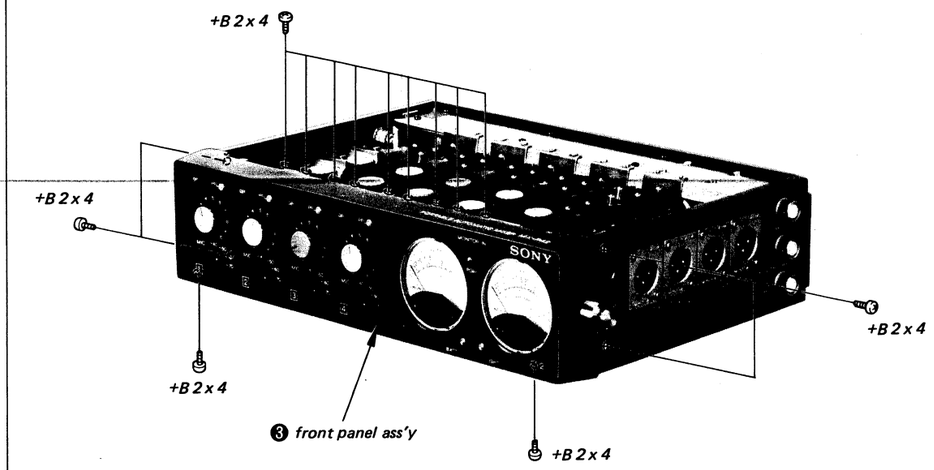
❶ *Remove eleven screws. (+P 2 x 4 ... ten/+P 2 x 7 ... one)*



FRONT PANEL ASS'Y

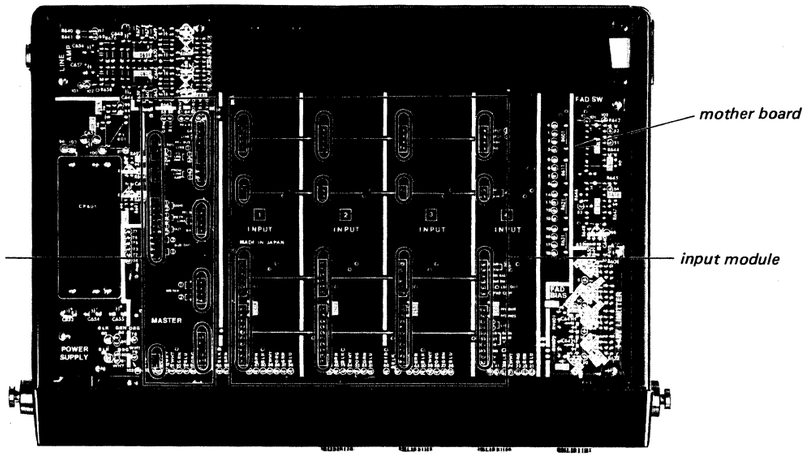
❶ *Remove the upper panel ass'y and the bottom plate ass'y*

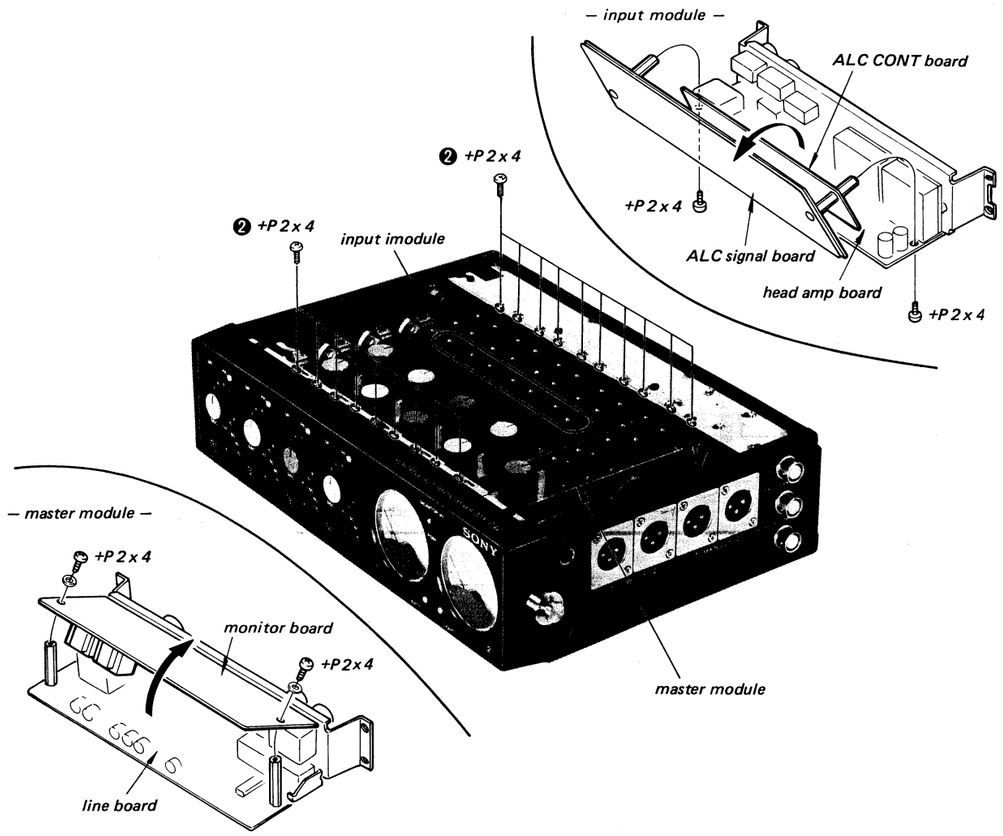
❷ *Remove fifteen screws. (+B 2 x 4)*



MASTER MODULE/INPUT MODULE

❶ *Unsolder terminals for each module from the mother board.*





SECTION 3
ADJUSTMENT

MX-P42

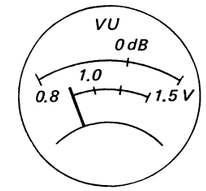
3-1. MASTER MODULE ADJUSTMENT

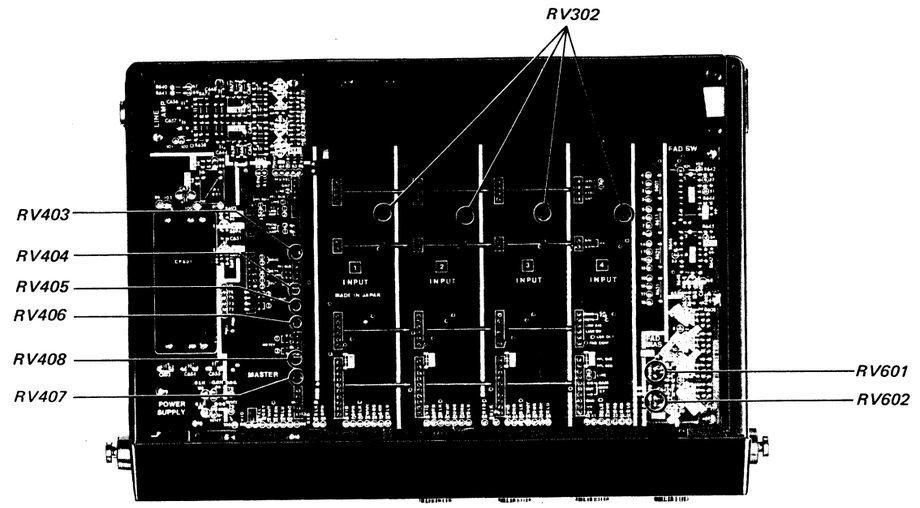
BATTERY CHECK Adjustment

Procedure:

1. Supply 6.5 V dc between Pin 1 and Pin 4 (GND) of DC IN 12 V connector.
2. With BATT CHECK button kept depressed, adjust RV404 so that pointer indicates leftmost on BATT scale as shown.
3. Change dc power supply voltage to 12.0 V.
4. Make sure that pointer indication is within ±0.5 dB on VU meter scale.

DC IN 12 V (DC power supply connector)
1: DC IN 12 V
2: NC
3: NC
4: GND

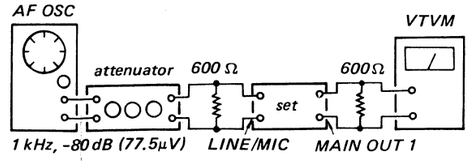




VU Meter Calibration

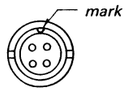
Procedure:

1. Adjust GMU control for +4 dBm reading on VTVM.
2. Adjust METER 0 dB adj. (RV405; channel-1, RV407; channel-2) for 0 dB reading on VU METER.
3. Change oscillator output to –77 dB (110 μV).
4. Adjust METER +3 dB adj. (RV406; channel-1, RV408; channel-2) for +3 dB reading on VU METER.
5. Change oscillator output to –80 dB (77.5 μV).



6. Readjust METER 0 dB adj. for 0 dB reading on VU METER.
7. Change oscillator output to –83 dB (55 μV).
8. Adjust GMU control so that VU meter reads –3 dB.
9. Make sure that VTVM reads +1 dBm ±0.5 dB.

ΓMENT



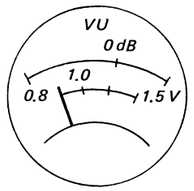
DC IN 12 V (DC power supply connector)
1: DC IN 12 V
2: NC
3: NC
4: GND

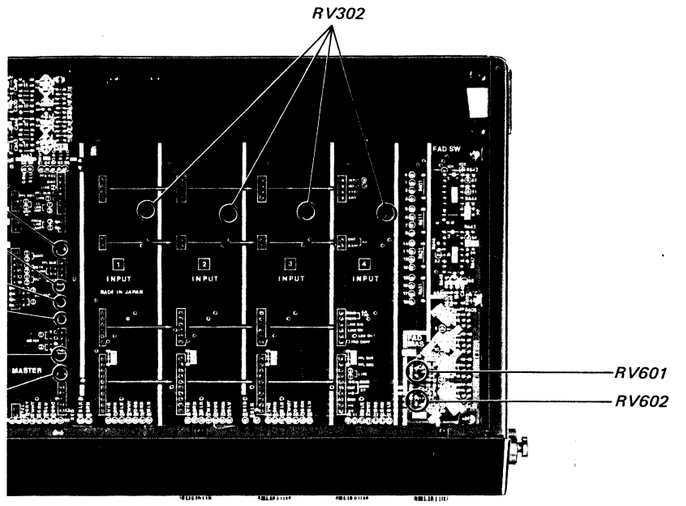
Pin 1 and Pin 4
ctor.

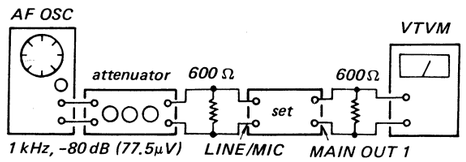
cept depressed, ad-
indicates leftmost

ge to 12.0 V.

tion is within ±0.5







-4 dBm reading on

RV405; channel-1,
lB reading on VU

-77 dB (1 10μV).

RV406; channel-1,
dB reading on VU

-80 dB (77.5 μV).

6. Readjust METER 0 dB adj. for 0 dB reading on VU METER.
7. Change oscillator output to -83 dB (55 μV).
8. Adjust GMU control so that VU meter reads -3 dB.
9. Make sure that VTVM reads +1 dBm ±0.5 dB.

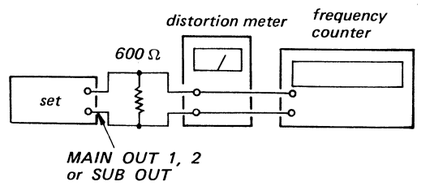
OSC Adjustment

Setting:

OSC switch: ON
SUB OUT switch: -20

Procedure:

1. Adjust RV403 for 0 dB reading on VU meter.
2. Make sure that distortion meter reads ±4 dBm ±0.1 dB at MAIN OUT 1, 2.
3. Make sure that distortion meter reads less than 1% at MAIN OUT 1, 2.
4. Make sure that frequency counter reads 900 Hz – 1,100 Hz.
5. Make sure that distortion meter reads -21 to -20 dBm at SUB OUT 1, 2.
6. Change SUB OUT switch to "-64" position.
7. Make sure that distortion meter reads -65 to -64 dBm at SUB OUT 1, 2.

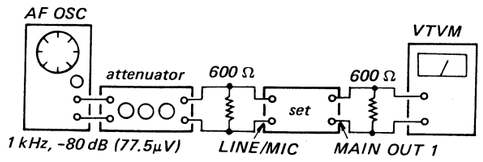


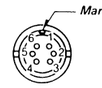
8. Change SUB OUT MONITOR/PGM switch "MONITOR" position.
9. Make sure that distortion meter reads -65 to -63 dBm at SUB OUT 1, 2.
10. Change SUB OUT switch to "-20" position.
11. Make sure that distortion meter reads -20 to -19 dBm at SUB OUT 1, 2.
12. Change load impedance from 600 Ω to 8 Ω.
13. Make sure that distortion meter reads -15 to -13 dBm at PHONES.

VCA Gain Adjustment

Procedure:

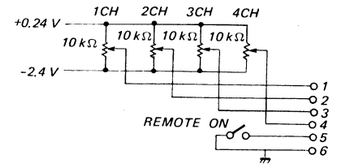
1. Turn channel fader knob fully clockwise.
2. Connect channel pin (ex. Pin No. 1 for channel-1) and Pin 5 to Pin 6 (GND) of REMOTE connector.
3. Adjust RV302 for +4 dBm ±0.1 dB reading on VTVM.
4. Remove shorting lead wires in procedure 2.





1: 1CH
2: 2CH
3: 3CH
4: 4CH
5: REMOTE CONTROL ENABLE
6: GND

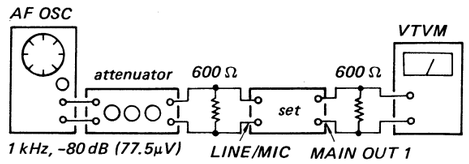
Detailed diagram of REMOTE Circuit



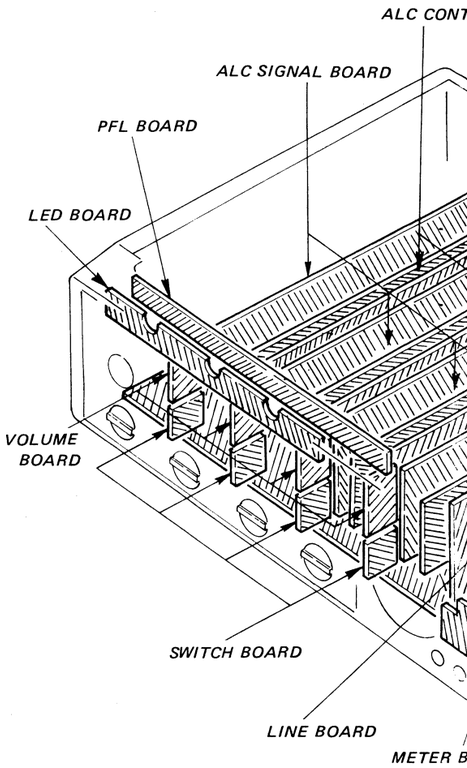
GMU (Gain Make-up) Adjustment

Procedure:

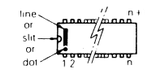
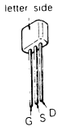
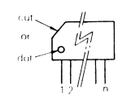
1. Turn GMU control fully clockwise.
2. Adjust RV601 for +14 dBm ±0.1 dB reading on VTVM.
3. Turn GMU control fully counterclockwise.
4. Change af oscillator output to -40 dB (7.75 mV).
5. Adjust RV602 for -36 dBm ±1 dB reading on VTVM.

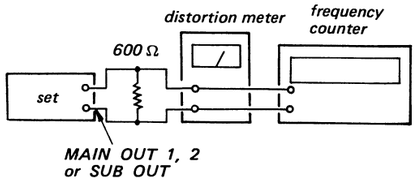


CIRCUIT BOARD LOCATION



Semiconductor Lead Layouts

NJM4560D **NJM4559D** **CX-770A** **μPC4557C** **TC4053BP** **μPC4558C** **NJM4556D** **2SK30A-0**	**2SC2014** **2SA872-E** **2SC1775A** **2SC1345**
 (Top view)	**2SK193** letter side 
NJM4558S 	**2SD1012** **2SB808** letter side



on VU meter.

reads ±4 dBm

reads less than

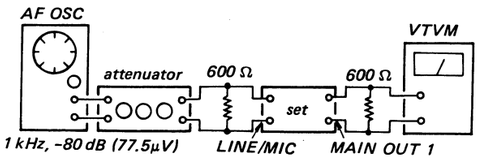
er reads 900 Hz

r reads −21 to

" position.

r reads −65 to

8. Change SUB OUT MONITOR/PGM switch "MONITOR" position.
9. Make sure that distortion meter reads −65 to −63 dBm at SUB OUT 1, 2.
10. Change SUB OUT switch to "−20" position.
11. Make sure that distortion meter reads −20 to −19 dBm at SUB OUT 1, 2.
12. Change load impedance from 600 Ω to 8 Ω.
13. Make sure that distortion meter reads −15 to −13 dBm at PHONES.



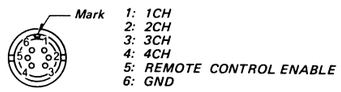
clockwise.

o. 1 for channel-

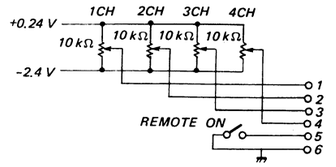
f REMOTE con-

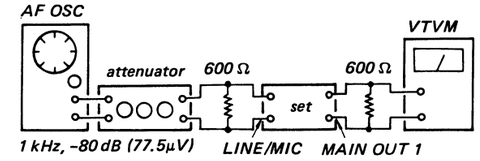
1 dB reading on

rocedure 2.



Detailed diagram of REMOTE Circuit





ise.

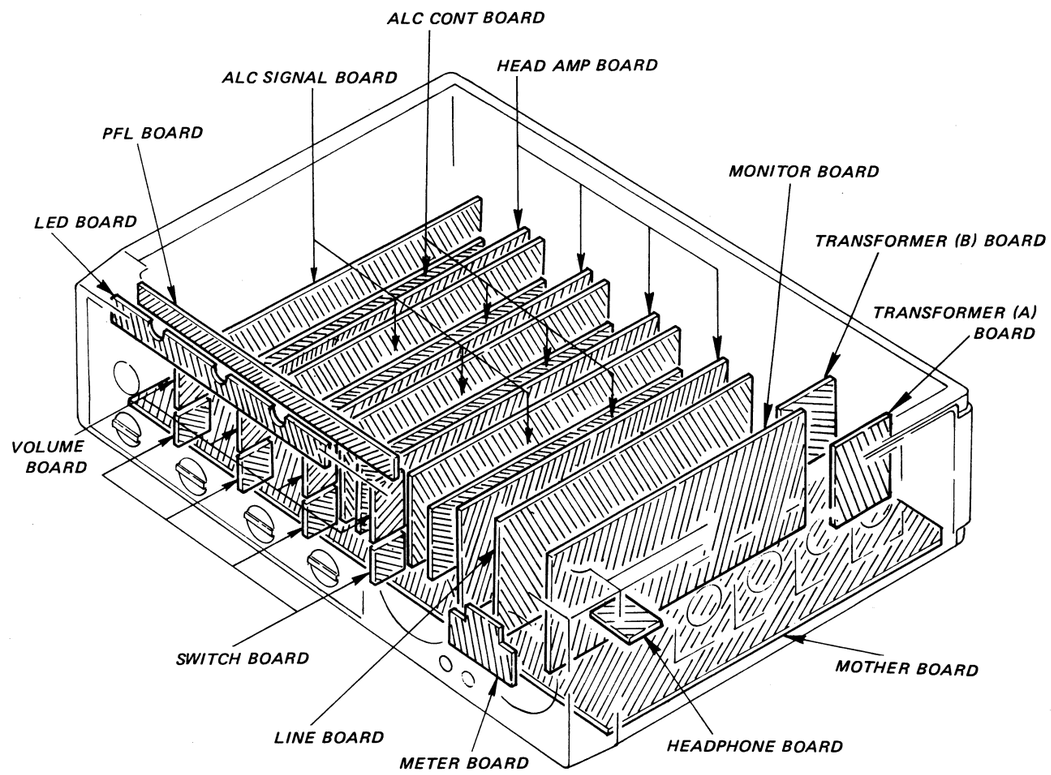
).1 dB reading on

rclockwise.

o −40 dB (7.75

1 dB reading on

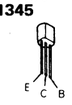
CIRCUIT BOARD LOCATION



Semiconductor Lead Layouts

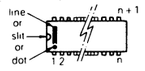
NJM4560D
NJM4559D
CX-770A
μPC4557C
TC4053BP
μPC4558C
NJM4556D
2SK30A-0

2SC2014
2SA872-E
2SC1775A
2SC1345

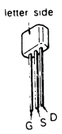


2SA1027R

MV-12N

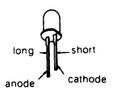


2SK193

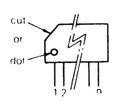


1SS119
RD3.9E
1S1555
10E2
HZ15-2L
RD8.2EB3Z7

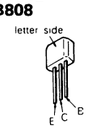
BR3432S



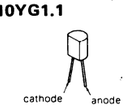
NJM4558S



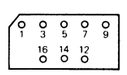
2SD1012
2SB808



10YG1.1

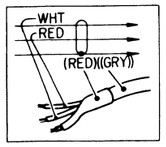


EGC-101



Note: (for mounting diagram)

- Color code of sleeving over the end of the jacket.



- ○— : parts extracted from the component side.
- ■ : part mounted on the conductor side.
- ⊗ : Through hole.
- : B + pattern
- : B − pattern
- ⊗·····⊗ : component-side pattern
- ——→ : Main (ch-1) signal path
- —·—→ : PGM/Monitor signal path
- - - -→ : ALC signal path
- ——→ : Mixed signal path of main (ch-1), PGM/Monitor and ALC
- ○ : Reference number of voltages on the chart which change with input conditions. (See page 39.)

Note: (for schematic diagram)

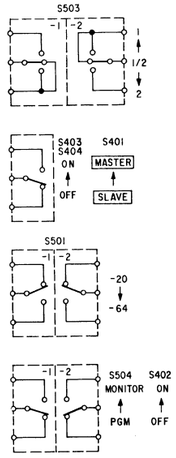
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4 W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- : nonflammable resistor.
- △ : internal component.
- : panel designation.
- : adjustment for repair.
- ——— : B+ bus.
- - - - : B− bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions with a digital voltage meter.
- ○ : Reference number of voltages on the chart which change with input conditions. (See page 39.)
- Voltage variations may be noted due to normal production tolerances.
- ⇨ : Main (ch-1) signal path
- ——→ : ALC signal path
- ——→ : Monitor signal path
- ——→ : PGM signal path
- Switches

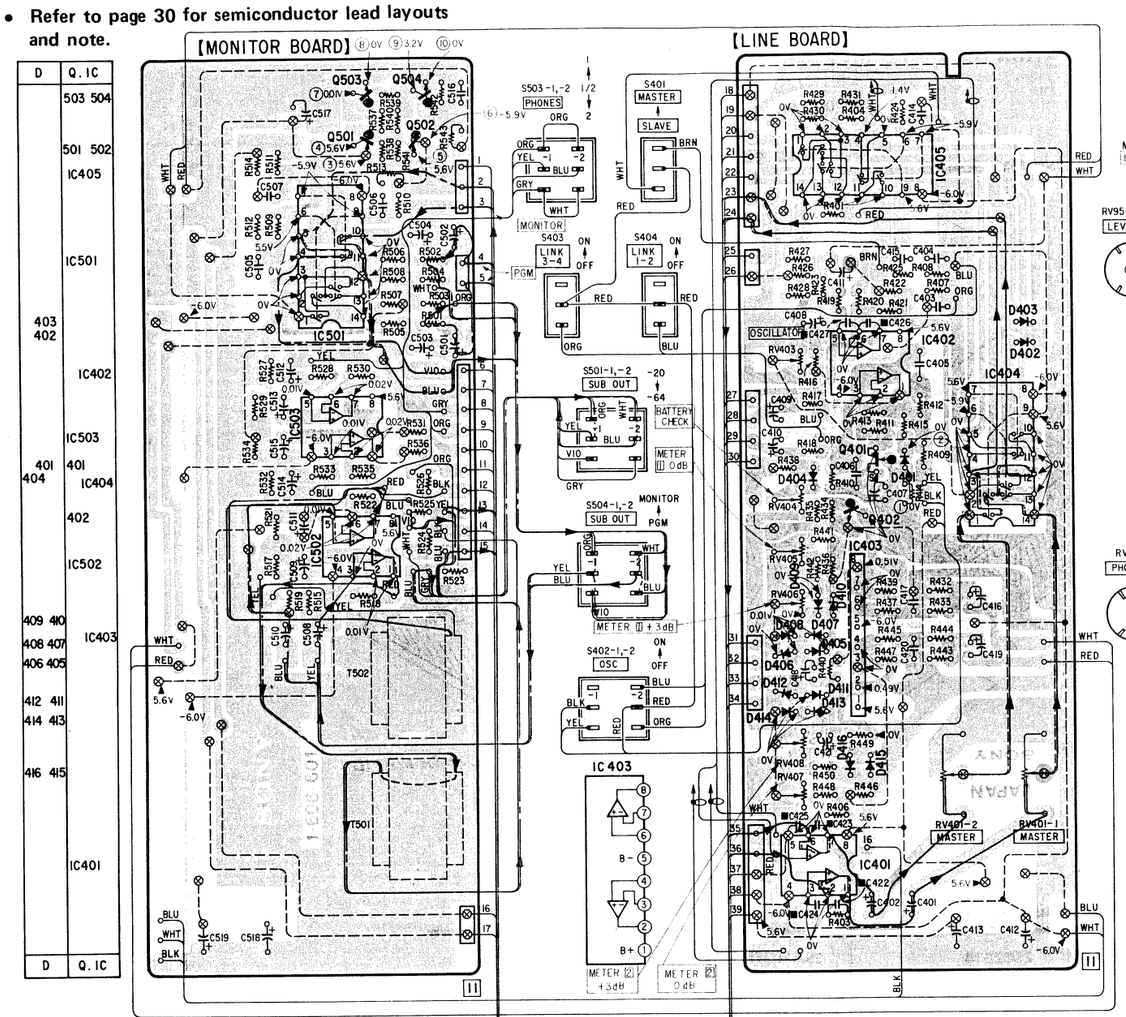
Ref. No.	Switch	Position
S101	MIC/LINE	MIC
S103	LINE	−20
S105	HCF	OFF
S106	LCF	OFF
S201	RECOV	S
S202	ALC	OFF
S401	MASTER-SLAVE	SLAVE
S402	OSC	OFF
S403	LINK 3-4	OFF
S404	LINK 1-2	OFF
S501	SUB OUT	−20
S503	PHONES	1/2
S504	SUB OUT	PGM
S701~704	PFL	OFF
S705	MIC	−70
S706	MONITOR IN−PGM	PGM
S801	BATT	OFF
S802	LIGHT	OFF
S901~904	+48V	OFF
905	POWER	OFF

4-1. MOUNTING DIAGRAM

— master module —

- **Refer to page 30 for semiconductor lead layouts and note.**





D	Q. IC
	503 504
	501 502
	IC405
	IC501
403	
402	
	IC402
	IC503
401	401
404	IC404
	402
	IC502
409 410	IC403
408 407	
406 405	
412 411	
414 413	
416 415	
	IC401

D	Q
801	803 802
	801

Q · IC							
			IC604 IC603		647 650 645 644	648 649 646 643	
		652 651					
D		616 615 617	618		613 612	614 611	60

E F G H I J K L

【MOTHER BOARD】

【TRANSFORMER(B)BOARD】

【TRANSFORMER(A)BOARD】

BATTERY CASE

IC601, 602

SONY
1-606-602

【HEADPHONE BOARD】

【VOLUME BOARD】 (CH-1)

【SWITCH BOARD】 (CH-1)

【VOLUME BOARD】 (CH-2)

【SWITCH BOARD】 (CH-2)

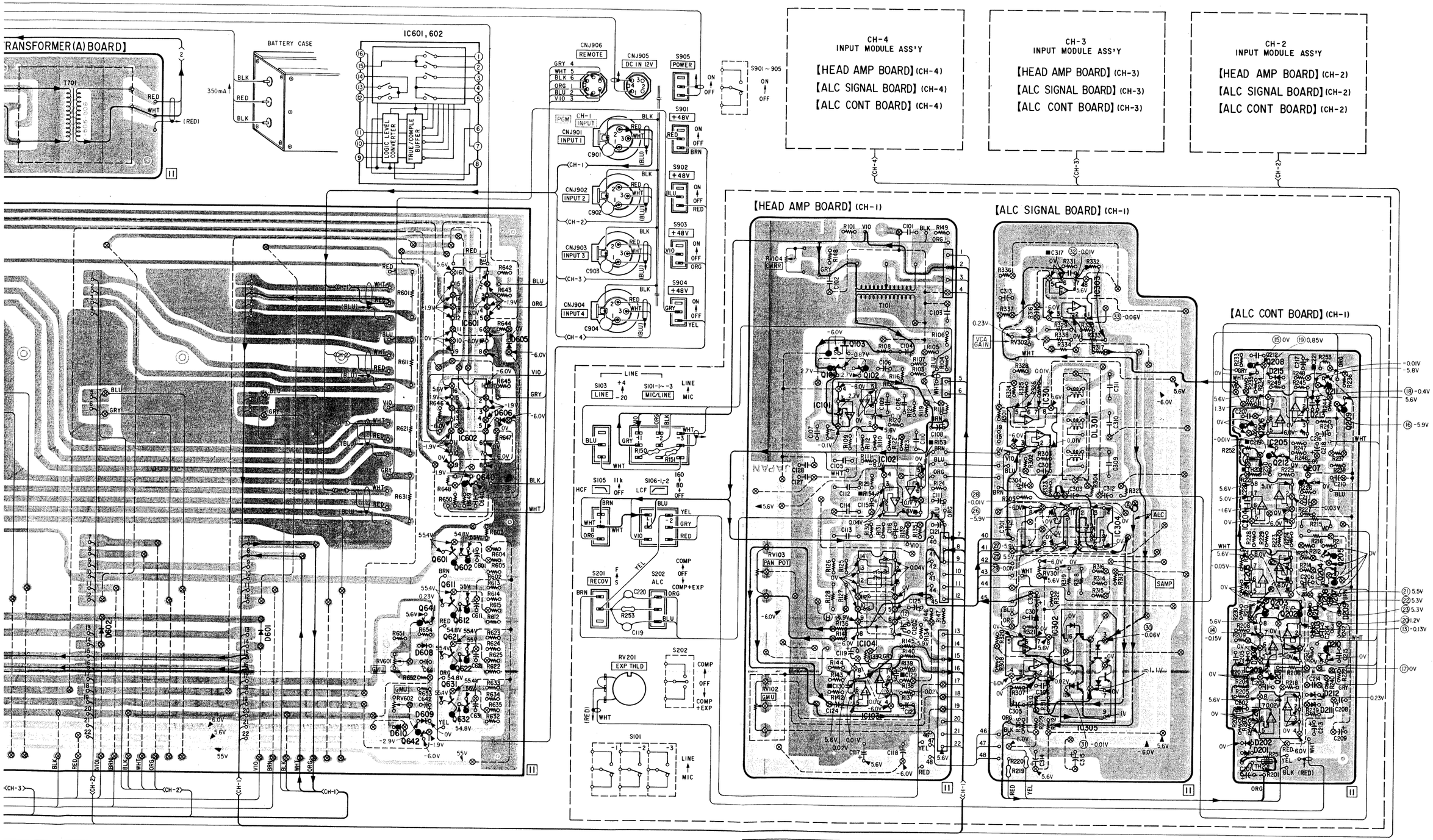
【IE BOARD】 (CH-3)

【CH BOARD】 (CH-3)

CH-3 INPUT MODULE ASS'Y

CH-2 INPUT MODULE ASS'Y

| | | |

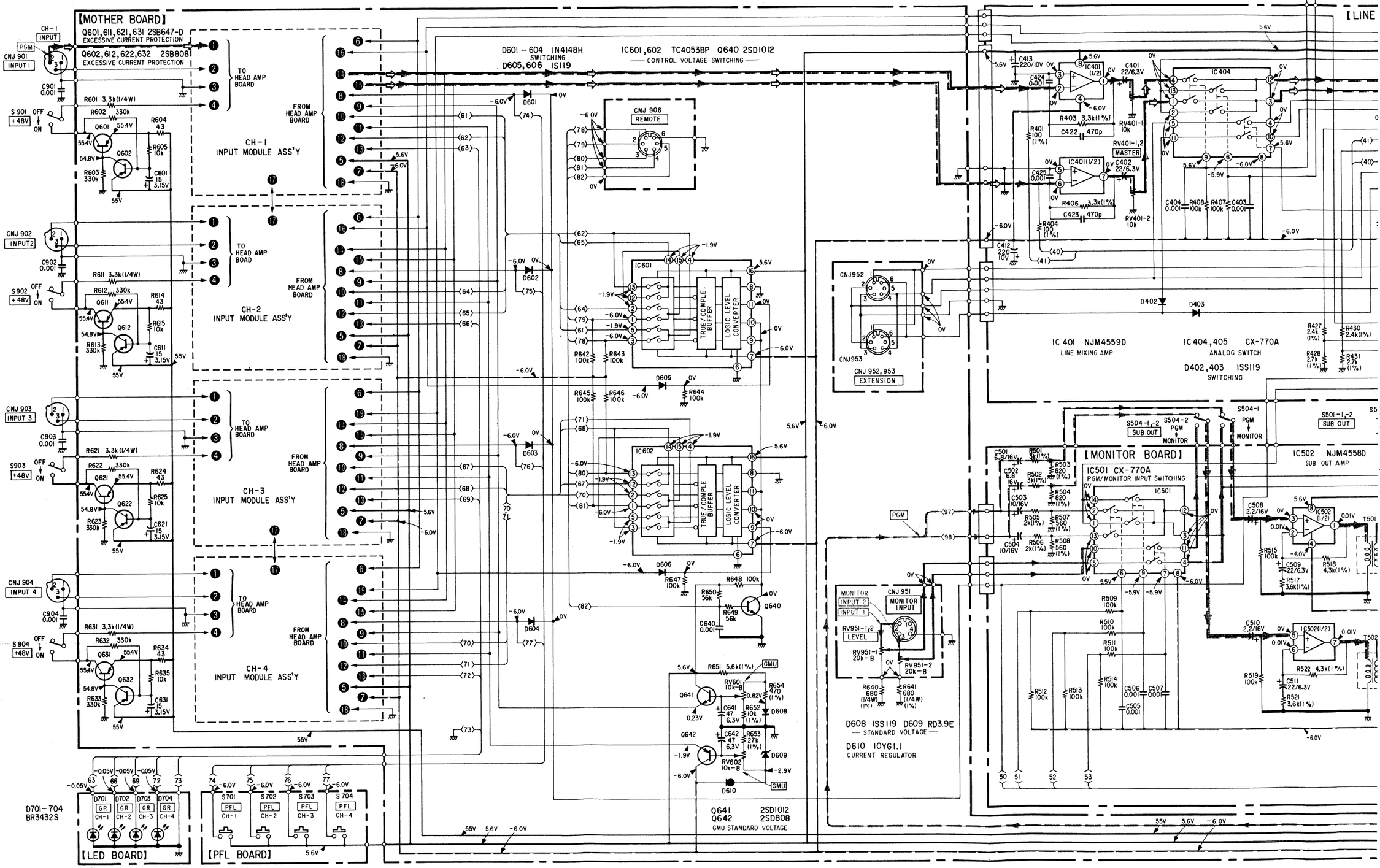

RANSFORMER(A) BOARD】
T701
RED
WHT
(RED)
BATTERY CASE
350mA
BLK
RED
BLK
IC601, 602
LOGIC LEVEL CONVERTER
TRUE/COMPLE BUFFER
CNJ906
REMOTE
GRY 4
WHT 5
BLK 6
ORG 1
BLU 2
VIO 3
CNJ905
DC IN 12V
S905
POWER
ON
OFF
S901 ~ 905
S901
+48V
S902
+48V
S903
+48V
S904
+48V
PGM
CH-1 INPUT
CNJ901
INPUT 1
CNJ902
INPUT 2
CNJ903
INPUT 3
CNJ904
INPUT 4
C901
C902
C903
C904
(CH-1)
(CH-2)
(CH-3)
(CH-4)
CH-4
INPUT MODULE ASS'Y
【HEAD AMP BOARD】(CH-4)
【ALC SIGNAL BOARD】(CH-4)
【ALC CONT BOARD】(CH-4)
CH-3
INPUT MODULE ASS'Y
【HEAD AMP BOARD】(CH-3)
【ALC SIGNAL BOARD】(CH-3)
【ALC CONT BOARD】(CH-3)
CH-2
INPUT MODULE ASS'Y
【HEAD AMP BOARD】(CH-2)
【ALC SIGNAL BOARD】(CH-2)
【ALC CONT BOARD】(CH-2)
【HEAD AMP BOARD】(CH-1)
【ALC SIGNAL BOARD】(CH-1)
【ALC CONT BOARD】(CH-1)
LINE
S103
+4
-20
S101-1~-3
LINE
MIC/LINE
MIC
S105
11k
OFF
HCF
S106-1,-2
160
80
OFF
LCF
S201
RECOV
S202
ALC
COMP
OFF
COMP+EXP
RV201
EXP THLD
S101
LINE
MIC
RV104
CMRR
RV103
PAN POT
RV102
GMU
RV601
RV602
VCA GAIN
RV302
ALC
SAMP
IC501
IC602
IC101
IC102
IC104
IC103
IC301
IC303
IC304
IC305
Q101
Q102
Q103
Q601
Q602
Q611
Q612
Q621
Q622
Q631
Q632
Q641
Q642
D601
D602
D605
D606
D608
D609
D610
D201
D202
D208
D209
D211
D212
D215
Q201
Q202
Q205
Q207
Q208
Q212
IC201
IC205
IC204
IC206

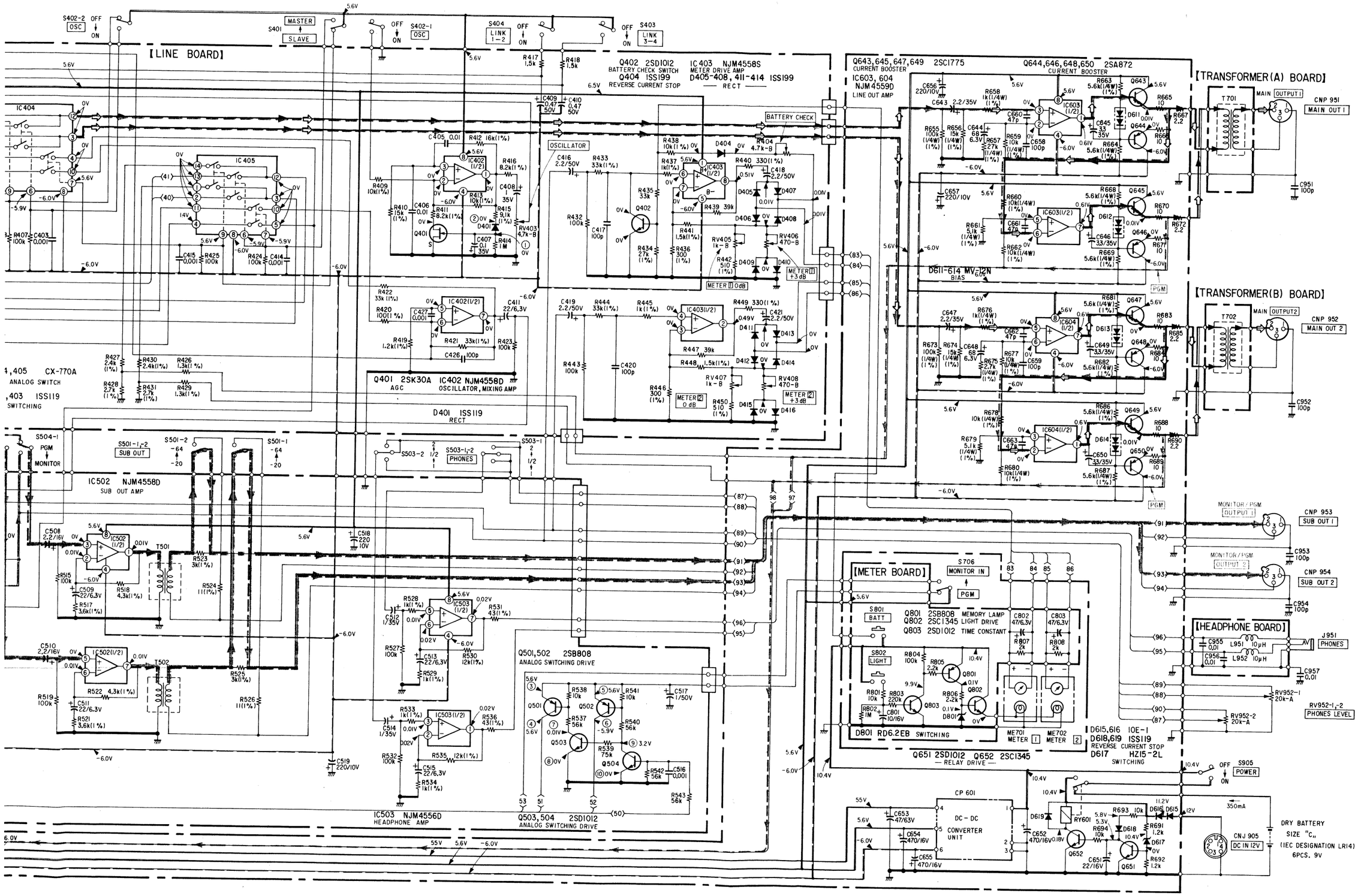
| | | |

4-2. SCHEMATIC DIAGRAM

— master module —

- **Refer to page 30 for semiconductor lead layouts and note.**




【LINE BOARD】
【TRANSFORMER(A) BOARD】
【TRANSFORMER(B) BOARD】
【METER BOARD】
【HEADPHONE BOARD】
IC404
IC405
IC402 NJM4558S METER DRIVE AMP
IC403 NJM4558S
IC502 NJM4558D SUB OUT AMP
IC503 NJM4556D HEADPHONE AMP
Q402 2SD1012 BATTERY CHECK SWITCH
Q404 ISS199 REVERSE CURRENT STOP
Q401 2SK30A AGC
Q643,645,647,649 2SC1775 CURRENT BOOSTER
Q644,646,648,650 2SA872 CURRENT BOOSTER
IC603, 604 NJM4559D LINE OUT AMP
D611-614 MV-12N BIAS
Q501,502 2SB808 ANALOG SWITCHING DRIVE
Q503,504 2SD1012 ANALOG SWITCHING DRIVE
Q801 2SB808 MEMORY LAMP
Q802 2SC1345 LIGHT DRIVE
Q803 2SD1012 TIME CONSTANT
Q651 2SD1012 Q652 2SC1345 — RELAY DRIVE —
D801 RD6.2EB SWITCHING
D615,616 10E-1
D618,619 ISS119 REVERSE CURRENT STOP
D617 HZ15-2L SWITCHING
CP 601 DC-DC CONVERTER UNIT
RY601
S402-2 OSC
S401 MASTER SLAVE
S402-1 OSC
S404 LINK 1-2
S403 LINK 3-4
S504-1 PGM MONITOR
S501-1,2 SUB OUT
S503-1,2 PHONES
S706 MONITOR IN PGM
S801 BATT
S802 LIGHT
S905 POWER
T501
T502
T701
T702
CNP 951 MAIN OUT 1
CNP 952 MAIN OUT 2
CNP 953 SUB OUT 1
CNP 954 SUB OUT 2
J951 PHONES
RV952-1,-2 PHONES LEVEL
CNJ 905 DC IN 12V
DRY BATTERY SIZE "C" (IEC DESIGNATION LR14) 6PCS. 9V
METER [1] 0dB
METER [1] +3dB
METER [2] 0dB
METER [2] +3dB
ME701 METER [1]
ME702 METER [2]
BATTERY CHECK
OSCILLATOR
D401 ISS119 RECT
CX-770A ANALOG SWITCH
ISS119 SWITCHING

Voltage Distribution Chart

Ref. No. \ Condition	S402 OSC switch: ON position (V)
①	0.88
②	0.01

Ref. No. \ Condition	S706 MONITOR switch: IN position (V)	When S706 MONITOR switch is PGM position, apply +6 V to PFL REQ switch.
③	0	5.6
④	-5.9	-5.9
⑤	0	5.6
⑥	-5.9	5.6
⑦	0	5.6
⑧	0	0
⑨	0	0
⑩	0	0

Ref. No. \ Condition	S106 LCF switch: 160 Hz position (V)
⑪	5.5
⑫	5.5

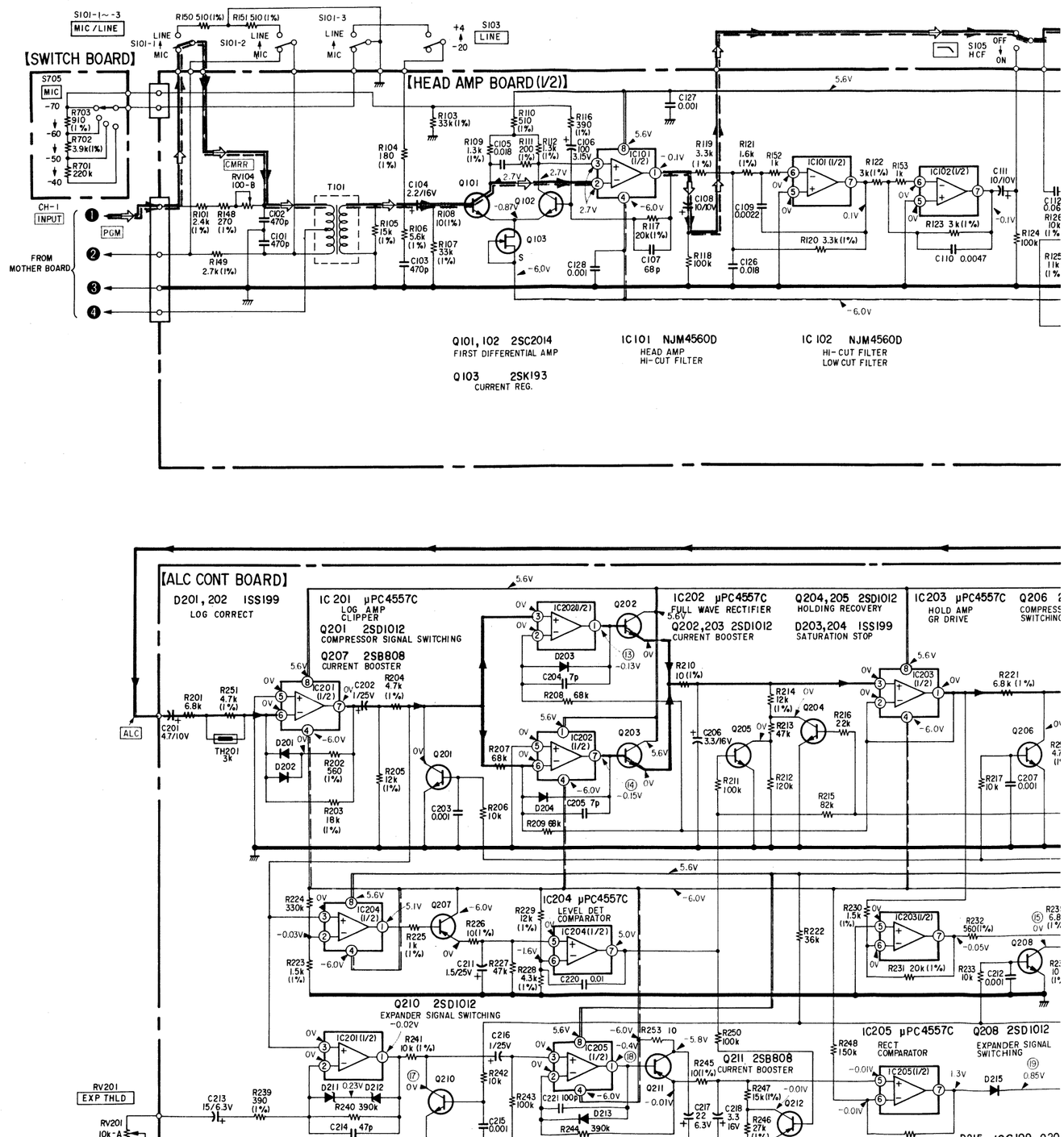
Ref. No. \ Condition	S202 ALC switch: COMP position (V)	When S202 ALC switch is COMP position, S403, 404 switch is set to ON: (+6 V apply) (V)	S202 ALC switch: COMP + EXP position (V)
⑬	-0.11	-0.11	-0.11
⑭	-0.16	-0.16	-0.16
⑮	0	0	0.36
⑯	5.6	5.6	5.6
⑰	0	0	-0.02
⑱	-0.4	-0.4	-0.2
⑲	0.85	0.85	0.88
⑳	-3.5	-3.5	-2.8
㉑	-4.1	-4.1	-3.4
㉒	1.5	1.5	-3.9
㉓	-4.6	-4.6	-0.27
㉔	1.2	1.2	-3.4
㉕	-4.0	-4.0	-3.4
㉖	5.6	5.6	5.6
㉗	-5.9	6.0	-5.9
㉘	-0.01	-0.01	-0.33
㉙	-0.01	-0.01	0.34
㉚	-0.06	-0.06	0.03
㉛	-0.06	-0.06	0.03
㉜	-0.01	-0.01	-0.47
㉝	-0.06	-0.06	0.03

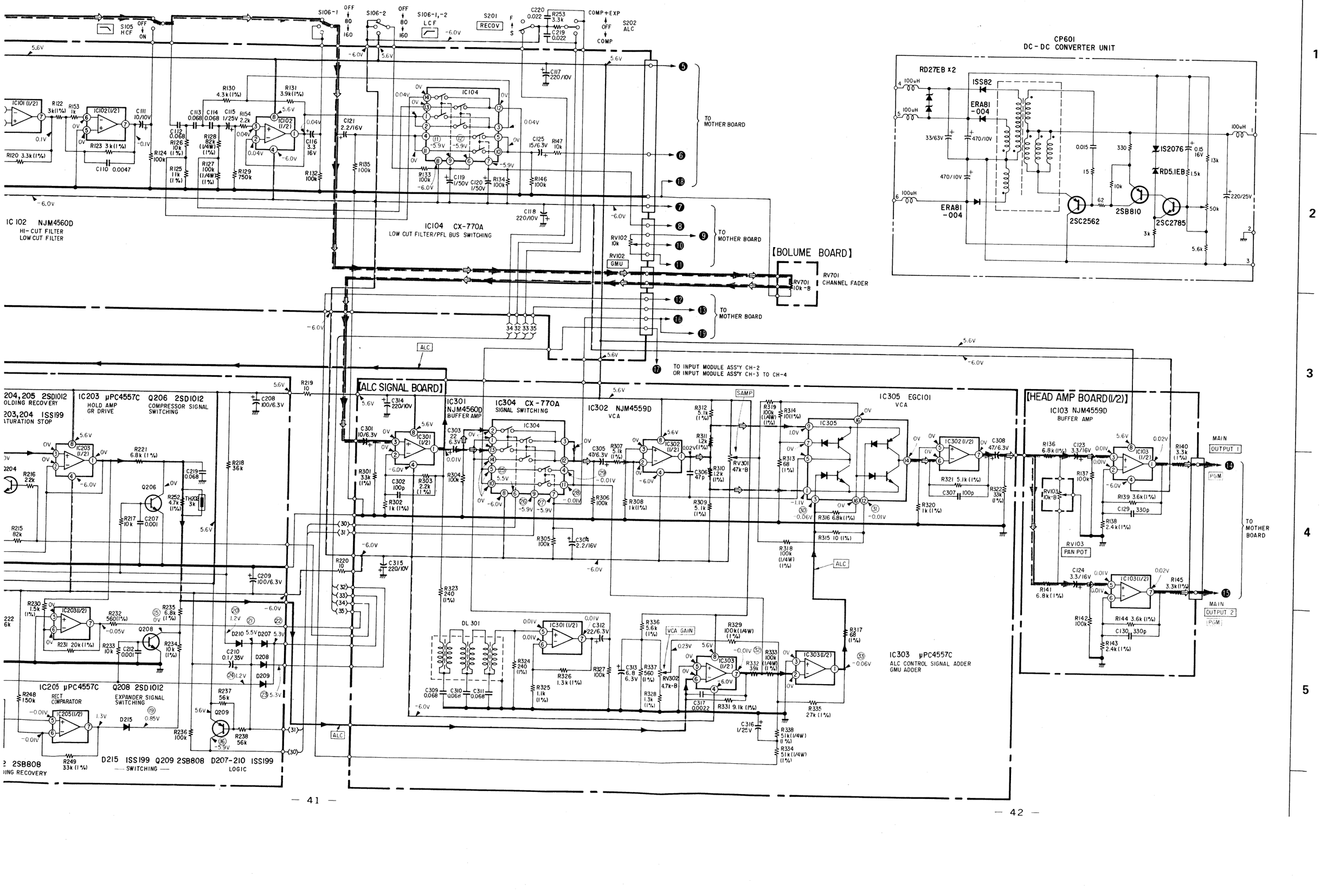
Voltages are measured with a digital voltage meter.
Reference number on this chart coresponds to that of schematic diagrams and mounting diagram on pages 31 to 42.

4-3. SCHEMATIC DIAGRAM

— input module —

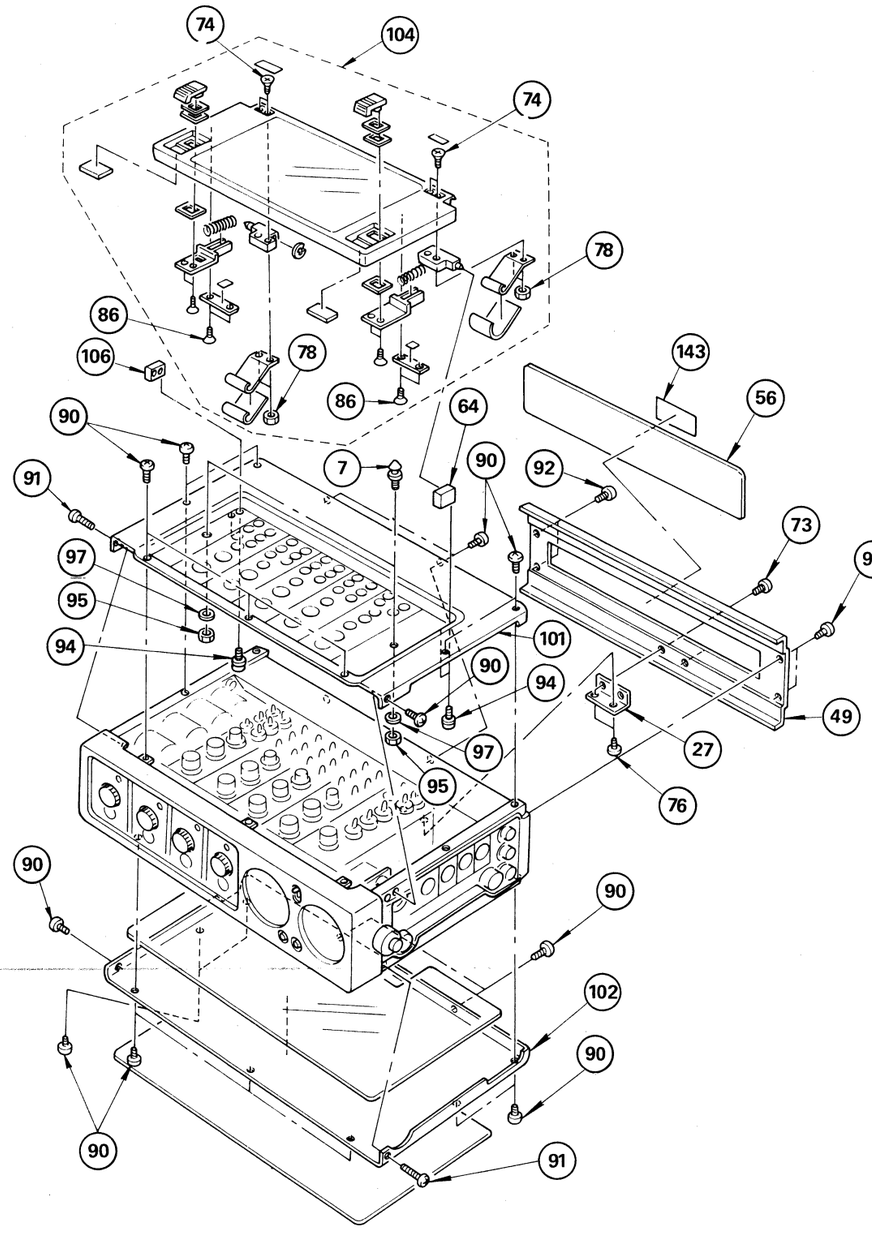
• Refer to page 30 for semiconductor lead layouts and note.



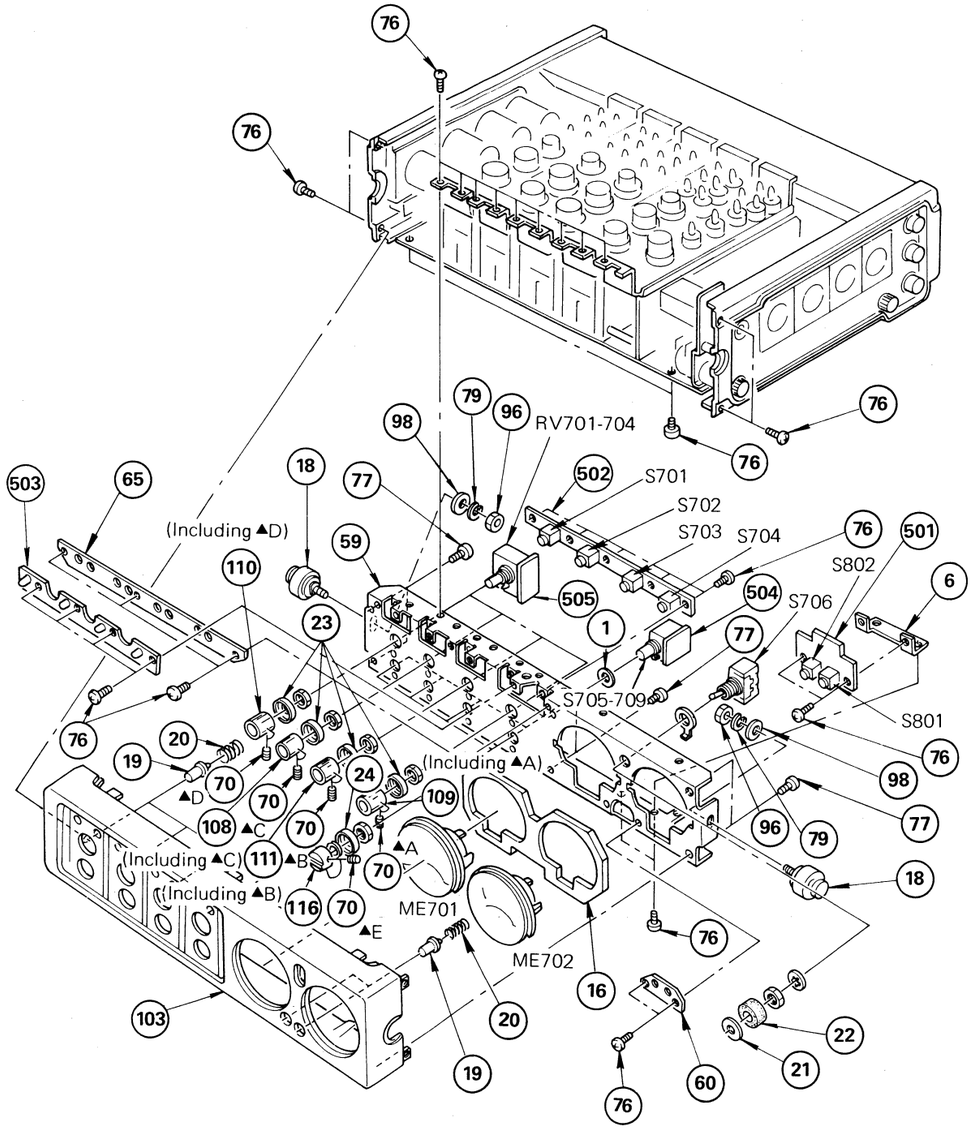

S105 HCF OFF ON
S106-1 OFF 80 160
S106-2 OFF 80 160
S106-1,-2 LCF
S201 RECOV F S
S202 ALC COMP+EXP OFF COMP
IC101 (1/2)
IC102 (1/2)
IC 102 NJM4560D
HI- CUT FILTER
LOW CUT FILTER
IC104 CX-770A
LOW CUT FILTER/PFL BUS SWITCHING
TO MOTHER BOARD
【BOLUME BOARD】
RV701 CHANNEL FADER
RV102 10k
RV102 GMU
TO INPUT MODULE ASS'Y CH-2 OR INPUT MODULE ASS'Y CH-3 TO CH-4
CP601
DC-DC CONVERTER UNIT
RD27EB x2
ISS82
ERA81 -004
2SC2562
2SB810
2SC2785
IS2076
RD5.1EB
【ALC SIGNAL BOARD】
IC301 NJM4560D BUFFER AMP
IC304 CX-770A SIGNAL SWITCHING
IC302 NJM4559D VCA
IC305 EGC101 VCA
【HEAD AMP BOARD(1/2)】
IC103 NJM4559D BUFFER AMP
MAIN OUTPUT 1 (PGM)
MAIN OUTPUT 2 (PGM)
TO MOTHER BOARD
RV103 PAN POT
IC203,205 2SD1012 HOLDING RECOVERY
IC203,204 ISS199 SATURATION STOP
IC203 µPC4557C HOLD AMP GR DRIVE
Q206 2SD1012 COMPRESSOR SIGNAL SWITCHING
IC205 µPC4557C RECT COMPARATOR
Q208 2SD1012 EXPANDER SIGNAL SWITCHING
Q209 2SB808 HOLDING RECOVERY
D215 ISS199 SWITCHING
Q209 2SB808 D207-210 ISS199 LOGIC
IC303 µPC4557C
ALC CONTROL SIGNAL ADDER
GMU ADDER
ALC
VCA GAIN
SAMP

SECTION 5
EXPLODED VIEWS AND PARTS LIST

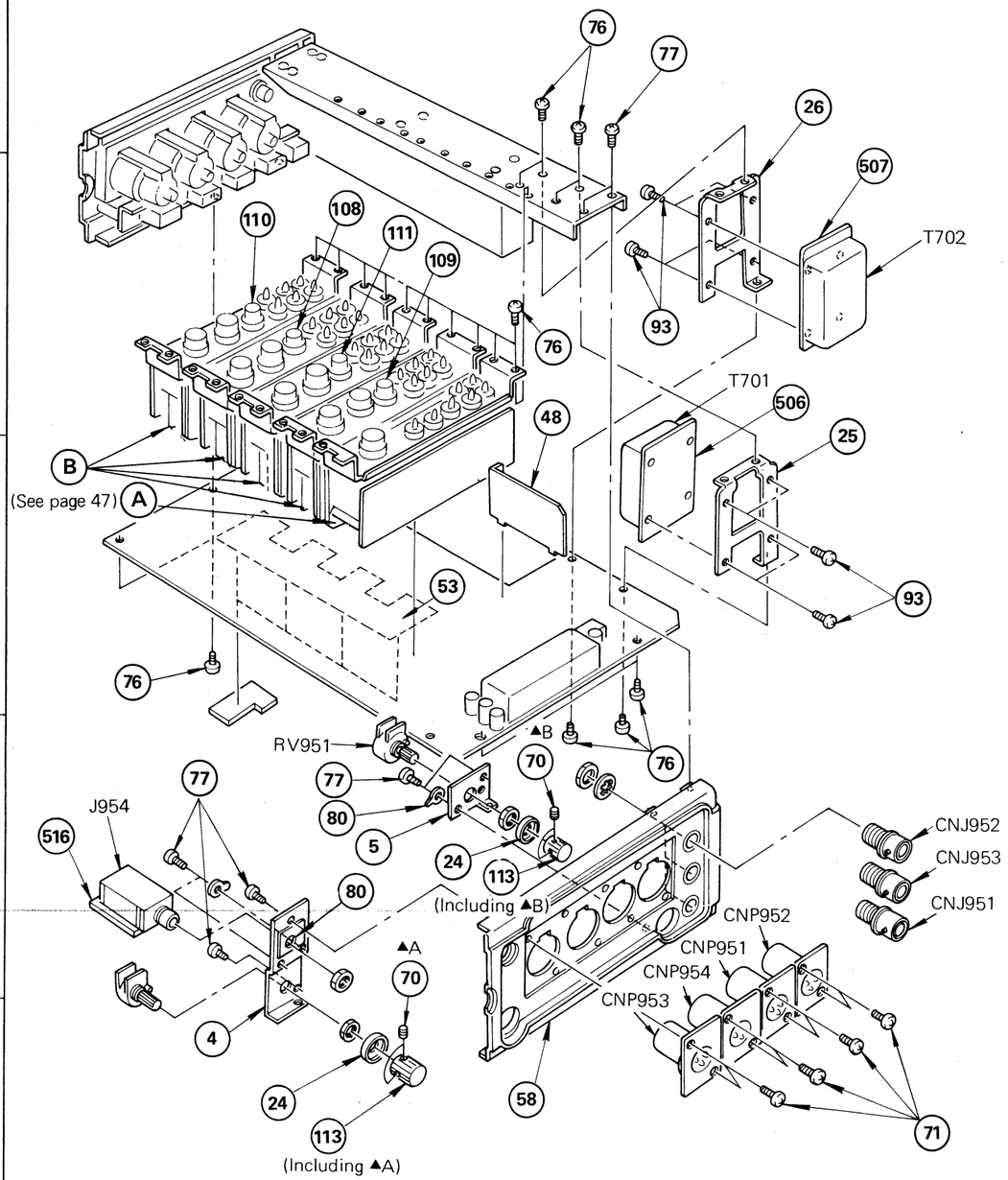
5-1.



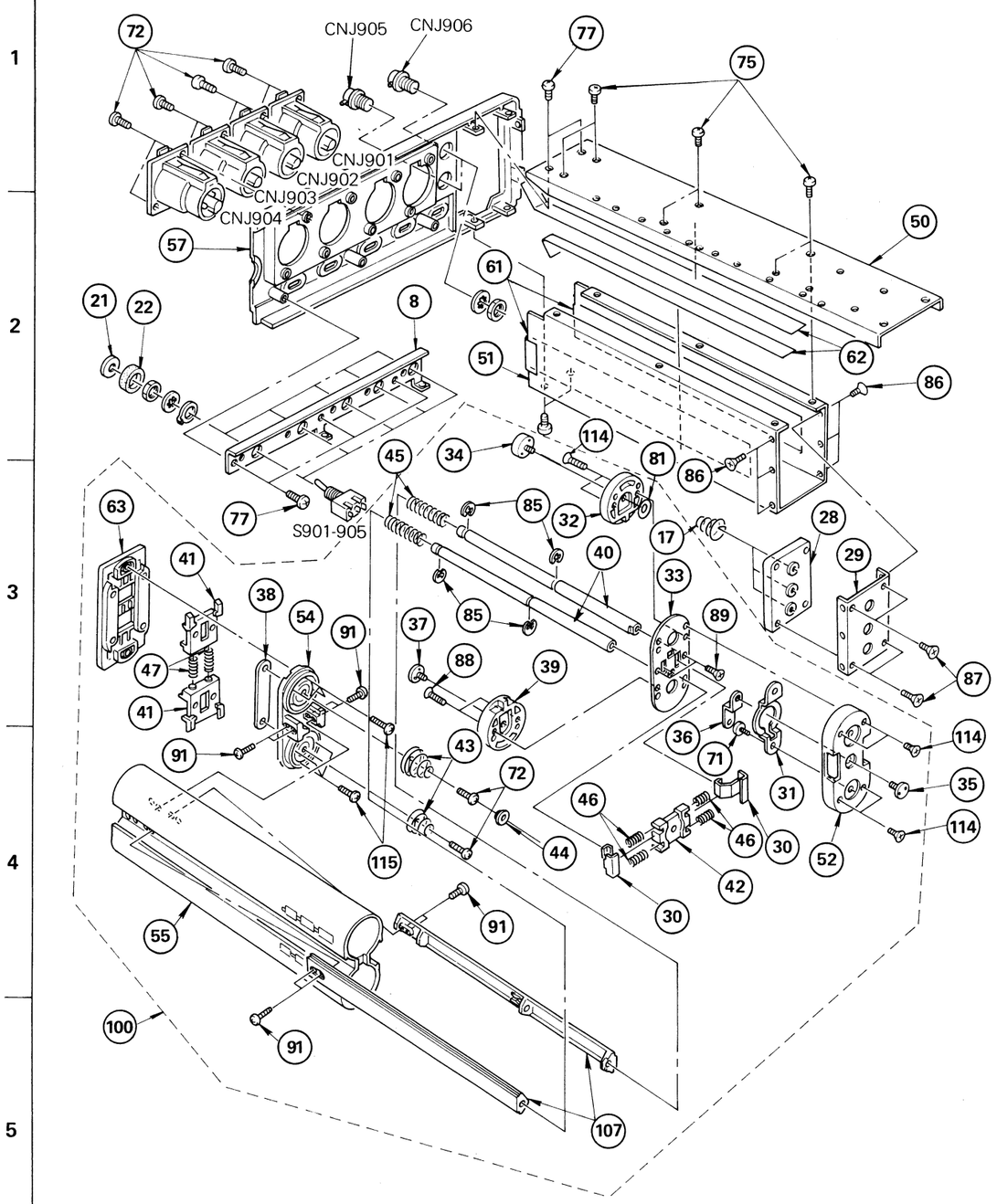
5-2.



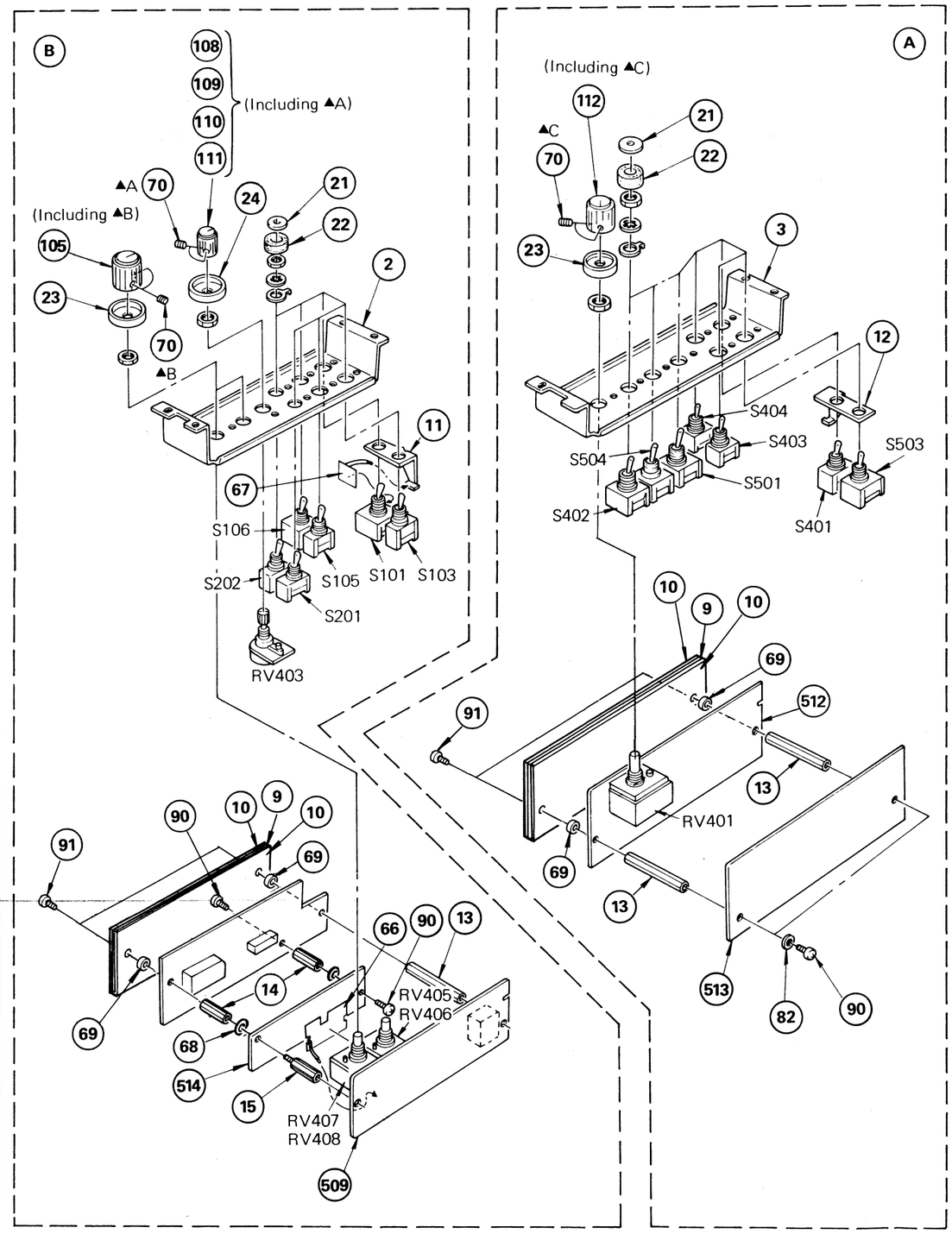
5-3.


76
77
26
507
T702
110
108
111
109
93
76
T701
506
48
25
B
(See page 47) A
93
53
76
RV951
▲B
70
77
77
80
5
24
113
(Including ▲B)
76
J954
516
80
CNJ952
CNJ953
CNJ951
CNP952
CNP951
CNP954
CNP953
▲A
70
4
24
113
(Including ▲A)
58
71

5-4.


72
CNJ905
CNJ906
77
75
CNJ901
CNJ902
CNJ903
CNJ904
57
50
61
21
22
8
51
62
86
114
45
34
81
86
63
77
S901-905
85
32
28
17
41
40
29
38
54
91
37
85
33
89
47
88
39
87
41
43
36
71
31
114
91
72
35
46
46
30
52
114
115
44
42
30
55
91
100
91
107

5-5.



GENERAL SECTION

No.	Part No.	Description
1	2-098-862-11	SPACER, JACK
2	♦2-300-601-00	CHASSIS, INPUT MODULE
3	♦2-300-602-00	CHASSIS, MASTER MODULE
4	♦2-300-603-00	BRACKET, HEADPHONE
5	♦2-300-604-00	BRACKET, CONTROL
6	♦2-300-605-00	BRACKET, PC BOARD, PUSH SWITCH
7	♦2-300-607-00	LOCK, UPPER LID
8	♦2-300-613-00	BRACKET, TOGGLE SWITCH
9	♦2-300-618-00	PLATE, SHIELD
10	♦2-300-619-00	INSULATOR (A)
11	♦2-300-620-01	PLATE, GROUND
12	♦2-300-620-11	PLATE, GROUND
13	♦2-300-621-00	POST (A), PC BOARD
14	♦2-300-622-00	POST (B), PC BOARD
15	♦2-300-623-00	POST (C), PC BOARD
16	♦2-300-624-00	CUSHION, METER
17	2-300-625-00	SPRING, BATTERY
18	♦2-300-626-00	BRACKET, HANDLE
19	2-300-627-00	KNOB, PUSH
20	2-300-628-00	SPRING, COMPRESSION
21	2-300-629-00	PLATE, BLIND
22	2-300-636-00	CUSHION
23	♦2-300-637-00	RUBBER (A), DUST PROTECTION
24	♦2-300-638-00	RUBBER (B), DUST PROTECTION
25	♦2-300-639-01	BRACKET (A), TRANSFORMER
26	♦2-300-639-11	BRACKET (B), TRANSFORMER
27	♦2-300-640-00	SUPPORT, BATTERY CASE
28	♦2-300-641-00	TERMINAL BOARD
29	2-300-642-00	HOLDER, ELECTRODE PLATE
30	♦2-300-647-00	PLATE, PUSH
31	♦2-300-648-00	PLATE (C) CONNECTION, BATTERY
32	♦2-300-649-00	BOARD (E), TERMINAL
33	♦2-300-650-00	BASE, TERMINAL BOARD
34	2-300-651-00	TERMINAL (D)
35	2-300-652-00	TERMINAL (C)
36	♦2-300-653-00	PLATE (B), CONNECTION, BATTERY
37	2-300-654-00	TERMINAL (B)
38	♦2-300-655-00	PLATE (A), CONNECTION, BATTERY
39	♦2-300-656-00	TERMINAL BOARD (A)
40	♦2-300-657-00	SHAFT, SLIDER
41	2-300-658-00	PLETA (B), PUSH
42	♦2-300-659-00	GUIDE, PUSH PLATE
43	2-300-660-00	SPRING
44	2-300-661-00	TERMINAL, PLUS
45	2-300-662-00	SPRING, COMPRESSION

GENERAL SECTION

No.	Part No.	Description
46	2-300-663-00	SPRING, COMPRESSION
47	2-300-664-00	SPRING, COMPRESSION
48	♦2-300-665-00	PLATE (B), SHIELD
49	♦2-300-669-00	CASE, REAR
50	♦2-300-670-00	CHASSIS
51	♦2-300-671-00	HOLDER, BATTERY
52	♦2-300-672-00	CASE, TERMINAL BOARD
53	2-300-708-01	PLATE (C), SHIELD
54	2-300-674-00	CASE, STOPPER
55	♦2-300-675-00	CASE, BATTERY
56	♦2-300-677-00	SHEET, REAR
57	♦2-300-678-00	CASE (LEFT), SIDE
58	♦2-300-679-00	CASE (RIGHT), SIDE
59	♦2-300-682-00	CHASSIS, FRONT
60	♦2-300-685-00	RETAINER (B), PUSH KNOB
61	♦2-300-688-00	SHEET (A), PROTECTION
62	♦2-300-689-00	SHEET (B), PROTECTION
63	2-300-690-00	COVER, BATTERY UNIT
64	♦2-300-700-00	BEARING (R), UPPER LID
65	♦2-300-703-00	RETAINER (A), PUSH KNOB
66	2-300-706-00	PLATE, SHIELD, HEAD AMPLIFIER
67	2-300-707-01	PLATE, SHIELD, SW
68	3-701-437-00	WASHER t0.13
69	3-556-451-00	COLLAR, EHD
70	3-701-505-00	SET SCREW, DOUBLE POINT 3X3
71	7-621-259-12	SCREW +P 2.6X3
72	7-621-259-42	SCREW +P 2.6X6
73	7-621-555-10	SCREW +K 2X3
74	7-621-555-50	SCREW +K 2X8
75	7-621-772-00	SCREW +B 2X3
76	7-621-772-10	SCREW +B 2X4
77	7-621-775-10	SCREW +B 2.6X4
78	7-622-205-06	N2 TYPE 2
79	7-623-210-22	SW 4, TYPE 2
80	7-623-507-01	LUG, 2.6
81	7-623-307-07	WASHER (A), 2.6
82	7-623-922-11	WASHER 2.0, NYLONE
83	7-623-307-07	WASHER (A), 2.6
84	7-624-102-02	STOP RING 1.5, TYPE-E
85	7-624-104-04	STOP RING 2.0, TYPE-E
86	7-627-452-28	SCREW, PRECISION +K 2X4
87	7-627-452-78	+K 2X8
88	7-627-453-08	SCREW +K 2X10
89	7-627-454-38	SCREW +K 2.6X5
90	7-627-553-48	SCREW, PRECISION +P 2X4

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:
- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

GENERAL SECTION

No.	Part No.	Description
91	7-627-553-88	SCREW, PRECISION +P 2X7
92	7-627-556-28	SCREW +P 2.6X3.5
93	7-621-772-38	SCREW +B 2X6
94	7-628-254-00	SCREW +PS 2.6X5
95	7-684-023-04	N 3, TYPE 2
96	7-684-024-04	N 4, TYPE 2
97	7-688-003-11	SW 3, TYPE 2
98	7-688-004-01	W 4, SMALL
99	.....	
100	A-2254-001-A	CASE ASSY, BATTERY
101	A-2300-068-A	PANEL ASSY, UPPER
102	A-2305-040-A	CASE ASSY, BOTTOM
103	A-2310-190-A	PANEL ASSY, FRONT
104	A-2315-020-A	LID ASSY, UPPER
105	X-2300-604-0	KNOB ASSY, 12 TYPE
106 ♦	X-2300-606-0	BEARING (L) ASSY, UPPER LID
107 ♦	X-2300-607-0	SLIDER ASSY
108	X-2300-608-0	KNOB ASSY, TYPE 16 (WHITE)
109	X-2300-609-0	KNOB ASSY, TYPE 16 (YELLOW)
110	X-2300-610-0	KNOB ASSY, TYPE 16 (GREEN)
111	X-2300-611-0	KNOB ASSY, TYPE 16 (BLUE)
112	X-2300-612-0	KNOB ASSY, TYPE 16 (RED)
113	X-2300-613-0	KNOB (A) ASSY, TYPE 14
114	7-627-452-78	SCREW, PRECISION +K 2X8
115	7-627-452-68	SCREW, PRECISION +P 2X6
116	X-2300-605-2	KNOB ASSY, 14 TYPE

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
141	1-556-255-00	MONITOR INPUT CONNECTING CORD
142	1-556-262-00	EXTERNAL POWER SUPPLY CONNECTING CORD
143 ♦	2-300-667-00	LABEL, MODEL NUMBER (E)
144	2-300-691-00	INDIVIDUAL CARTON
145	2-300-692-00	SHEET (A)
146	2-300-693-00	SHEET (B)
147	2-300-694-00	CUSHION, SPACE
148	2-300-695-00	SHEET, CUSHION, BOTTOM
149	2-300-696-00	CUSHION
150	2-300-704-00	CASE, LETHER
151	3-673-012-11	STRAP, SHOULDER
152	3-701-363-00	LABEL, TACK
153	3-701-618-00	BAG, POLYETHYLENE
154	3-701-630-00	BAG, POLYETHYLENE
155	3-783-982-11	MANUAL, INSTRUCTION
156	3-881-644-00	BAG, PROTECTION
157	3-883-011-00	BAG, PROTECTION
158	3-883-469-00	BAG, PROTECTION
159	A-2254-001-A	CASE ASSY, BATTERY
160 ♦	3-794-422-21	(US) CARD, WARRANTY

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
501	♦ 1-606-603-00	PC BOARD, METER			
502	♦ 1-606-604-00	PC BOARD, PFL			
503	♦ 1-606-605-00	PC BOARD, LED			
504	♦ 1-606-606-00	PC BOARD, SWITCH			
505	♦ 1-606-607-00	PC BOARD, VOLUME			
506	♦ 1-606-608-11	PC BOARD, TRANSFORMER (A)			
507	♦ 1-606-608-21	PC BOARD, TRANSFORMER (B)			
508	♦ 1-607-310-00	PC BOARD, JUMPER			
509	♦ A-2022-045-A	MOUNTED PCB, HEAD AMPLIFIER			
510	♦ A-2022-046-A	MOUNTED PCB, ALC SIG			
511	♦ A-2095-469-A	MOUNTED PCB, MOTHER			
512	♦ A-2095-472-A	MOUNTED PCB, LINE			
513	♦ A-2095-473-A	MOUNTED PCB, MONITOR			
514	♦ A-2095-475-A	MOUNTED PCB, ALC CONT			
515	1-560-691-11	PLUG, CONNECTOR			
C302	1-102-106-00	CERAMIC	100PF	10%	50V
C307	1-102-106-00	CERAMIC	100PF	10%	50V
C417	1-102-106-00	CERAMIC	100PF	10%	50V
C420	1-102-106-00	CERAMIC	100PF	10%	50V
C422	1-102-114-00	CERAMIC	470PF	10%	50V
C423	1-102-114-00	CERAMIC	470PF	10%	50V
C658	1-102-106-00	CERAMIC	100PF	10%	50V
C659	1-102-106-00	CERAMIC	100PF	10%	50V
C901	1-102-106-00	CAP, CERAMIC 100PF B			
C902	1-102-106-00	CAP, CERAMIC 100PF B			
C903	1-102-106-00	CAP, CERAMIC 100PF B			
C904	1-102-106-00	CAP, CERAMIC 100PF B			
CNJ901	1-509-184-31	CONNECTOR (RECEPTACLE) 3P			
CNJ902	1-509-184-31	CONNECTOR (RECEPTACLE) 3P			
CNJ903	1-509-184-31	CONNECTOR (RECEPTACLE) 3P			
CNJ904	1-509-184-31	CONNECTOR (RECEPTACLE) 3P			
CNJ905	1-561-309-00	SOCKET, CONNECTOR			
CNJ906	1-561-795-00	SOCKET, CONNECTOR 6P			
CNJ951	1-561-309-00	SOCKET, CONNECTOR			
CNJ952	1-561-795-00	SOCKET, CONNECTOR 6P			
CNJ953	1-561-795-00	SOCKET, CONNECTOR 6P			
CNP951	1-509-176-31	CONNECTOR (RECEPTACLE) 3P			
CNP952	1-509-176-31	CONNECTOR (RECEPTACLE) 3P			
CNP953	1-509-176-31	CONNECTOR (RECEPTACLE) 3P			
CNP954	1-509-176-31	CONNECTOR (RECEPTACLE) 3P			
CP601	1-464-171-00	CONVERTER UNIT, DC-DC			
D201	8-719-911-19	DIODE 1SS119			
D202	8-719-911-19	DIODE 1SS119			
D203	8-719-911-19	DIODE 1SS119			

ELECTRICAL PARTS

Ref.No.	Part No.	Description
D204	8-719-911-19	DIODE 1SS119
D207	8-719-911-19	DIODE 1SS119
D208	8-719-911-19	DIODE 1SS119
D209	8-719-911-19	DIODE 1SS119
D210	8-719-911-19	DIODE 1SS119
D211	8-719-139-07	DIODE RD3.9E-B
D212	8-719-139-07	DIODE RD3.9E-B
D213	8-719-911-19	DIODE 1SS119
D214	8-719-911-19	DIODE 1SS119
D215	8-719-911-19	DIODE 1SS119
D401	8-719-911-19	DIODE 1SS119
D402	8-719-911-19	DIODE 1SS119
D403	8-719-911-19	DIODE 1SS119
D404	8-719-911-19	DIODE 1SS119
D405	8-719-911-19	DIODE 1SS119
D406	8-719-911-19	DIODE 1SS119
D407	8-719-911-19	DIODE 1SS119
D408	8-719-911-19	DIODE 1SS119
D409	8-719-911-19	DIODE 1SS119
D410	8-719-911-19	DIODE 1SS119
D411	8-719-911-19	DIODE 1SS119
D412	8-719-911-19	DIODE 1SS119
D413	8-719-911-19	DIODE 1SS119
D414	8-719-911-19	DIODE 1SS119
D415	8-719-911-19	DIODE 1SS119
D416	8-719-911-19	DIODE 1SS119
D601	8-719-815-55	DIODE 1S1555
D602	8-719-815-55	DIODE 1S1555
D603	8-719-815-55	DIODE 1S1555
D604	8-719-815-55	DIODE 1S1555
D605	8-719-911-19	DIODE 1SS119
D606	8-719-911-19	DIODE 1SS119
D608	8-719-911-19	DIODE 1SS119
D609	8-719-139-07	DIODE RD3.9E-B
D610	8-719-201-11	DIODE 1OYG1.1
D611	8-719-912-00	DIODE MV-12N
D612	8-719-912-00	DIODE MV-12N
D613	8-719-912-00	DIODE MV-12N
D614	8-719-912-00	DIODE MV-12N
D615	8-719-200-02	DIODE 10E-2
D616	8-719-200-02	DIODE 10E-2
D617	8-719-910-52	DIODE HZ15-2L
D618	8-719-911-19	DIODE 1SS119
D619	8-719-911-19	DIODE 1SS119
D701	8-719-934-35	DIODE BR3432S

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:
- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:
- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

ELECTRICAL PARTS

Ref.No.	Part No.	Description
D702	8-719-934-35	DIODE BR3432S
D703	8-719-934-35	DIODE BR3432S
D704	8-719-934-35	DIODE BR3432S
D801	8-719-162-27	DIODE RD6.2E-B3Z7
DL301	1-415-270-00	DELAY LINE
IC101	8-759-745-60	IC NJM4560D
IC102	8-759-745-60	IC NJM4560D
IC103	8-759-745-59	IC NJM4559D
IC104	8-759-307-70	IC CX-770A
IC201	8-759-145-57	IC UPC4557C
IC202	8-759-145-57	IC UPC4557C
IC203	8-759-145-57	IC UPC4557C
IC204	8-759-145-57	IC UPC4557C
IC205	8-759-145-57	IC UPC4557C
IC301	8-759-745-60	IC NJM4560D
IC302	8-759-745-59	IC NJM4559D
IC303	8-759-145-57	IC UPC4557C
IC304	8-759-307-70	IC CX-770A
IC305	8-749-901-01	IC EGC-101
IC401	8-759-745-59	IC NJM4559D
IC402	8-759-145-58	IC UPC4558C
IC403	8-759-700-08	IC NJM4558S
IC404	8-759-307-70	IC CX-770A
IC405	8-759-307-70	IC CX-770A
IC501	8-759-307-70	IC CX-770A
IC502	8-759-145-58	IC UPC4558C
IC503	8-759-745-56	IC NJM4556D
IC601	8-759-240-53	IC TC4053BP
IC602	8-759-240-53	IC TC4053BP
IC603	8-759-745-59	IC NJM4559D
IC604	8-759-745-59	IC NJM4559D
J951	1-507-707-00	JACK, LARGE TYPE
J954	1-507-707-00	JACK, LARGE TYPE
L951	1-408-117-11	MICROINDUCTOR 10UH
L952	1-408-117-11	MICROINDUCTOR 10UH
ME701	1-520-447-00	METER
ME702	1-520-446-00	METER
Q101	8-765-493-00	TRANSISTOR 2SC2014
Q102	8-765-493-00	TRANSISTOR 2SC2014
Q103	8-729-119-32	TRANSISTOR 2SK193
Q201	8-729-811-24	TRANSISTOR 2SD1012
Q202	8-729-811-24	TRANSISTOR 2SD1012
Q203	8-729-811-24	TRANSISTOR 2SD1012

ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q204	8-729-811-24	TRANSISTOR 2SD1012
Q205	8-729-811-24	TRANSISTOR 2SD1012
Q206	8-729-811-24	TRANSISTOR 2SD1012
Q207	8-729-880-82	TRANSISTOR 2SB808
Q208	8-729-811-24	TRANSISTOR 2SD1012
Q209	8-729-880-82	TRANSISTOR 2SB808
Q210	8-729-811-24	TRANSISTOR 2SD1012
Q211	8-729-880-82	TRANSISTOR 2SB808
Q212	8-729-880-82	TRANSISTOR 2SB808
Q401	8-729-203-02	TRANSISTOR 2SK30A-O
Q402	8-729-811-24	TRANSISTOR 2SD1012
Q501	8-729-880-82	TRANSISTOR 2SB808
Q502	8-729-880-82	TRANSISTOR 2SB808
Q503	8-729-811-24	TRANSISTOR 2SD1012
Q504	8-729-811-24	TRANSISTOR 2SD1012
Q601	8-729-387-28	TRANSISTOR 2SA872-E
Q602	8-729-800-82	TRANSISTOR 2SB808
Q611	8-729-387-28	TRANSISTOR 2SA872-E
Q612	8-729-800-82	TRANSISTOR 2SB808
Q621	8-729-387-28	TRANSISTOR 2SA872-E
Q622	8-729-800-82	TRANSISTOR 2SB808
Q631	8-729-387-28	TRANSISTOR 2SA872-E
Q632	8-729-800-82	TRANSISTOR 2SB808
Q640	8-729-811-24	TRANSISTOR 2SD1012
Q641	8-729-811-24	TRANSISTOR 2SD1012
Q642	8-729-800-82	TRANSISTOR 2SB808
Q643	8-729-307-58	TRANSISTOR 2SC1775-A
Q644	8-729-612-77	TRANSISTOR 2SA1027R
Q645	8-729-307-58	TRANSISTOR 2SC1775-A
Q646	8-729-612-77	TRANSISTOR 2SA1027R
Q647	8-729-307-58	TRANSISTOR 2SC1775-A
Q648	8-729-612-77	TRANSISTOR 2SA1027R
Q649	8-729-307-58	TRANSISTOR 2SC1775-A
Q650	8-729-612-77	TRANSISTOR 2SA1027R
Q651	8-729-811-24	TRANSISTOR 2SD1012
Q652	8-729-334-58	TRANSISTOR 2SC1345
Q801	8-729-880-82	TRANSISTOR 2SB808
Q802	8-729-334-58	TRANSISTOR 2SC1345
Q803	8-729-811-24	TRANSISTOR 2SD1012
R150	1-214-550-00	RES, METAL FILM 910
R151	1-214-550-00	RES, METAL FILM 910
RV102	1-228-512-00	RES, VAR, CARBON 10K
RV103	1-228-513-00	RES, VAR, CARBON 10K
RV104	1-226-512-00	RES, ADJ, METAL GLAZE 100

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:
- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

ELECTRICAL PARTS

Ref.No.	Part No.	Description
RV201	1-228-514-00	RES, VAR, CARBON 10K
RV301	1-226-774-00	RES, ADJ, METAL GLAZE 47K
RV302	1-228-394-00	RES, ADJ, METAL GLAZE 4.7K
RV401	1-228-511-00	RES, VAR, CARBON 10K/10K
RV403	1-228-394-00	RES, ADJ, METAL GLAZE 4.7K
RV404	1-228-394-00	RES, ADJ, METAL GLAZE 4.7K
RV405	1-228-518-00	RES, ADJ, METAL GLAZE 1K
RV406♦	1-228-520-00	RES, ADJ, METAL GLAZE 470
RV407	1-228-518-00	RES, ADJ, METAL GLAZE 1K
RV408♦	1-228-520-00	RES, ADJ, METAL GLAZE 470
RV601	1-226-703-00	RES, ADJ, METAL GLAZE 10K
RV602	1-226-703-00	RES, ADJ, METAL GLAZE 10K
RV701	1-228-510-00	RES, VAR, CARBON 10K
RV951	1-228-515-00	RES, VAR, CARBON 20K/20K
RV952	1-228-509-00	RES, VAR, CARBON 20K/20K
RY601	1-515-335-00	RELAY
S101	1-554-132-00	SWITCH, TOGGLE
S103	1-553-969-00	SWITCH, TOGGLE
S105	1-553-969-00	SWITCH, TOGGLE
S106	1-553-970-00	SWITCH, TOGGLE
S201	1-553-969-00	SWITCH, TOGGLE
S202	1-553-973-00	SWITCH, TOGGLE
S401	1-553-969-00	SWITCH, TOGGLE
S402	1-553-971-00	SWITCH, TOGGLE
S403	1-553-969-00	SWITCH, TOGGLE
S404	1-553-969-00	SWITCH, TOGGLE
S501	1-553-971-00	SWITCH, TOGGLE
S503	1-553-970-00	SWITCH, TOGGLE
S504	1-553-971-00	SWITCH, TOGGLE
S701	1-553-075-21	SWITCH, PUSH
S702	1-553-075-21	SWITCH, PUSH
S703	1-553-075-21	SWITCH, PUSH
S704	1-553-075-21	SWITCH, PUSH
S705	1-553-968-00	SWITCH, ROTARY
S706	1-553-969-00	SWITCH, TOGGLE
S801	1-553-075-21	SWITCH, PUSH
S802	1-553-075-21	SWITCH, PUSH
S901	1-553-972-00	SWITCH, TOGGLE
S902	1-553-972-00	SWITCH, TOGGLE
S903	1-553-972-00	SWITCH, TOGGLE
S904	1-553-972-00	SWITCH, TOGGLE
S905	1-553-972-00	SWITCH, TOGGLE
T101	1-423-252-12	TRASFORMER, INPUT
T501	1-427-515-00	TRANSFORMER, OUTPUT
T502	1-427-515-00	TRANSFORMER, OUTPUT

ELECTRICAL PARTS

Ref.No.	Part No.	Description
T701	1-427-514-00	TRANSFORMER, OUTPUT
T702	1-427-514-00	TRANSFORMER, OUTPUT
TB101♦	1-535-392-00	TERMINAL (WITH BASE) 4P
TB102♦	1-535-390-00	TERMINAL (WITH BASE) 2P
TB103♦	1-535-394-00	TERMINAL (WITH BASE) 6P
TB104♦	1-535-396-00	TERMINAL (WITH BASE) 10P
TB401♦	1-535-393-00	TERMINAL (WITH BASE) 5P
TB402♦	1-535-395-00	TERMINAL (WITH BASE) 7P
TB403♦	1-535-390-00	TERMINAL (WITH BASE) 2P
TB404♦	1-535-392-00	TERMINAL (WITH BASE) 4P
TB405♦	1-535-392-00	TERMINAL (WITH BASE) 4P
TB501♦	1-535-390-00	TERMINAL (WITH BASE) 2P
TB502♦	1-535-391-00	TERMINAL (WITH BASE) 3P
TB503♦	1-535-391-00	TERMINAL (WITH BASE) 3P
TB504♦	1-535-396-00	TERMINAL (WITH BASE) 10P
TB601♦	1-535-364-00	PIN, RAPPING
TB602♦	1-535-364-00	PIN, RAPPING
TB603♦	1-535-364-00	PIN, RAPPING
TB604♦	1-535-364-00	PIN, RAPPING
TB605♦	1-535-364-00	PIN, RAPPING
TB606♦	1-535-364-00	PIN, RAPPING
TB607♦	1-535-364-00	PIN, RAPPING
TB608♦	1-535-364-00	PIN, RAPPING
TB609♦	1-535-364-00	PIN, RAPPING
TB610♦	1-535-364-00	PIN, RAPPING
TB611♦	1-535-364-00	PIN, RAPPING
TB612♦	1-535-364-00	PIN, RAPPING
TB613♦	1-535-364-00	PIN, RAPPING
TB614♦	1-535-364-00	PIN, RAPPING
TB615♦	1-535-364-00	PIN, RAPPING
TB616♦	1-535-364-00	PIN, RAPPING
TB617♦	1-535-364-00	PIN, RAPPING
TB618♦	1-535-364-00	PIN, RAPPING
TB619♦	1-535-364-00	PIN, RAPPING
TB620♦	1-535-364-00	PIN, RAPPING
TH201	1-800-200-00	THERMISTOR S-3K
TH202	1-800-200-00	THERMISTOR S-3K

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:
- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

ELECTRICAL PARTS

Ref.No.	Part No.	Description
RV201	1-228-514-00	RES, VAR, CARBON 10K
RV301	1-226-774-00	RES, ADJ, METAL GLAZE 47K
RV302	1-228-394-00	RES, ADJ, METAL GLAZE 4.7K
RV401	1-228-511-00	RES, VAR, CARBON 10K/10K
RV403	1-228-394-00	RES, ADJ, METAL GLAZE 4.7K
RV404	1-228-394-00	RES, ADJ, METAL GLAZE 4.7K
RV405	1-228-518-00	RES, ADJ, METAL GLAZE 1K
RV406♦	1-228-520-00	RES, ADJ, METAL GLAZE 470
RV407	1-228-518-00	RES, ADJ, METAL GLAZE 1K
RV408♦	1-228-520-00	RES, ADJ, METAL GLAZE 470
RV601	1-226-703-00	RES, ADJ, METAL GLAZE 10K
RV602	1-226-703-00	RES, ADJ, METAL GLAZE 10K
RV701	1-228-510-00	RES, VAR, CARBON 10K
RV951	1-228-515-00	RES, VAR, CARBON 20K/20K
RV952	1-228-509-00	RES, VAR, CARBON 20K/20K
RY601	1-515-335-00	RELAY
S101	1-554-132-00	SWITCH, TOGGLE
S103	1-553-969-00	SWITCH, TOGGLE
S105	1-553-969-00	SWITCH, TOGGLE
S106	1-553-970-00	SWITCH, TOGGLE
S201	1-553-969-00	SWITCH, TOGGLE
S202	1-553-973-00	SWITCH, TOGGLE
S401	1-553-969-00	SWITCH, TOGGLE
S402	1-553-971-00	SWITCH, TOGGLE
S403	1-553-969-00	SWITCH, TOGGLE
S404	1-553-969-00	SWITCH, TOGGLE
S501	1-553-971-00	SWITCH, TOGGLE
S503	1-553-970-00	SWITCH, TOGGLE
S504	1-553-971-00	SWITCH, TOGGLE
S701	1-553-075-21	SWITCH, PUSH
S702	1-553-075-21	SWITCH, PUSH
S703	1-553-075-21	SWITCH, PUSH
S704	1-553-075-21	SWITCH, PUSH
S705	1-553-968-00	SWITCH, ROTARY
S706	1-553-969-00	SWITCH, TOGGLE
S801	1-553-075-21	SWITCH, PUSH
S802	1-553-075-21	SWITCH, PUSH
S901	1-553-972-00	SWITCH, TOGGLE
S902	1-553-972-00	SWITCH, TOGGLE
S903	1-553-972-00	SWITCH, TOGGLE
S904	1-553-972-00	SWITCH, TOGGLE
S905	1-553-972-00	SWITCH, TOGGLE
T101	1-423-252-12	TRASFORMER, INPUT
T501	1-427-515-00	TRANSFORMER, OUTPUT
T502	1-427-515-00	TRANSFORMER, OUTPUT

ELECTRICAL PARTS

Ref.No.	Part No.	Description
T701	1-427-514-00	TRANSFORMER, OUTPUT
T702	1-427-514-00	TRANSFORMER, OUTPUT
TB101♦	1-535-392-00	TERMINAL (WITH BASE) 4P
TB102♦	1-535-390-00	TERMINAL (WITH BASE) 2P
TB103♦	1-535-394-00	TERMINAL (WITH BASE) 6P
TB104♦	1-535-396-00	TERMINAL (WITH BASE) 10P
TB401♦	1-535-393-00	TERMINAL (WITH BASE) 5P
TB402♦	1-535-395-00	TERMINAL (WITH BASE) 7P
TB403♦	1-535-390-00	TERMINAL (WITH BASE) 2P
TB404♦	1-535-392-00	TERMINAL (WITH BASE) 4P
TB405♦	1-535-392-00	TERMINAL (WITH BASE) 4P
TB501♦	1-535-390-00	TERMINAL (WITH BASE) 2P
TB502♦	1-535-391-00	TERMINAL (WITH BASE) 3P
TB503♦	1-535-391-00	TERMINAL (WITH BASE) 3P
TB504♦	1-535-396-00	TERMINAL (WITH BASE) 10P
TB601♦	1-535-364-00	PIN, RAPPING
TB602♦	1-535-364-00	PIN, RAPPING
TB603♦	1-535-364-00	PIN, RAPPING
TB604♦	1-535-364-00	PIN, RAPPING
TB605♦	1-535-364-00	PIN, RAPPING
TB606♦	1-535-364-00	PIN, RAPPING
TB607♦	1-535-364-00	PIN, RAPPING
TB608♦	1-535-364-00	PIN, RAPPING
TB609♦	1-535-364-00	PIN, RAPPING
TB610♦	1-535-364-00	PIN, RAPPING
TB611♦	1-535-364-00	PIN, RAPPING
TB612♦	1-535-364-00	PIN, RAPPING
TB613♦	1-535-364-00	PIN, RAPPING
TB614♦	1-535-364-00	PIN, RAPPING
TB615♦	1-535-364-00	PIN, RAPPING
TB616♦	1-535-364-00	PIN, RAPPING
TB617♦	1-535-364-00	PIN, RAPPING
TB618♦	1-535-364-00	PIN, RAPPING
TB619♦	1-535-364-00	PIN, RAPPING
TB620♦	1-535-364-00	PIN, RAPPING
TH201	1-800-200-00	THERMISTOR S-3K
TH202	1-800-200-00	THERMISTOR S-3K

ıple:
, UPC···: μPC,

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:
- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

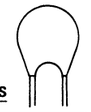
RESISTORS
- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

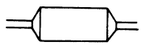
MYLAR CAPACITORS

CAP. (μF)	RATING 50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.
0.001	1-108-227-00	1-108-365-00	1-108-409-00	0.01	1-108-239-00	1-108-377-00	1-108-421-00	0.1	1-108-251-00	1-108-389-00	1-108-433-00
0.0012	1-108-351-00	1-108-366-00	1-108-410-00	0.012	1-108-357-00	1-108-378-00	1-108-422-00	0.12	1-108-363-00	1-108-390-00	1-108-434-00
0.0015	1-108-228-00	1-108-367-00	1-108-411-00	0.015	1-108-240-00	1-108-379-00	1-108-423-00	0.15	1-108-252-00	1-108-391-00	1-108-435-00
0.0018	1-108-352-00	1-108-368-00	1-108-412-00	0.018	1-108-358-00	1-108-380-00	1-108-424-00	0.18	1-108-364-00	1-108-392-00	1-108-436-00
0.0022	1-108-230-00	1-108-369-00	1-108-413-00	0.022	1-108-242-00	1-108-381-00	1-108-425-00	0.22	1-108-254-00	1-108-393-00	1-108-437-00
0.0027	1-108-353-00	1-108-370-00	1-108-414-00	0.027	1-108-359-00	1-108-382-00	1-108-426-00	0.27	1-108-854-00	–	–
0.0033	1-108-232-00	1-108-371-00	1-108-415-00	0.033	1-108-244-00	1-108-383-00	1-108-427-00	0.33	1-108-855-00	–	–
0.0039	1-108-354-00	1-108-372-00	1-108-416-00	0.039	1-108-360-00	1-108-384-00	1-108-428-00	0.39	1-108-856-00	–	–
0.0047	1-108-234-00	1-108-373-00	1-108-417-00	0.047	1-108-246-00	1-108-385-00	1-108-429-00	0.47	1-108-857-00	–	–
0.0056	1-108-355-00	1-108-374-00	1-108-418-00	0.056	1-108-361-00	1-108-386-00	1-108-430-00				
0.0068	1-108-237-00	1-108-375-00	1-108-419-00	0.068	1-108-249-00	1-108-387-00	1-108-431-00				
0.0082	1-108-356-00	1-108-376-00	1-108-420-00	0.082	1-108-362-00	1-108-388-00	1-108-432-00				



TANTALUM CAPACITORS

CAP. (μF)	RATING →: Use the high voltage rated one. 3.15 VOLT. PART No.	6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	20 VOLT. PART No.	25 VOLT. PART No.	35 VOLT. PART No.
0.01					→	→	1-131-396-00
0.015						→	1-131-397-00
0.022						→	1-131-398-00
0.033						→	1-131-399-00
0.047						→	1-131-400-00
0.068					→	→	1-131-401-00
0.1					→	→	1-131-402-00
0.15					→	→	1-131-403-00
0.22					→	→	1-131-404-00
0.33					→	1-131-409-00	1-131-405-00
0.47	–	–	–	–	1-131-412-00	→	1-131-406-00
0.68	–	–	–	1-131-415-00	→	1-131-410-00	1-131-407-00
1.0	–	–	1-131-418-00	–	1-131-413-00	→	1-131-408-00
1.5	–	1-131-421-00	–	1-131-416-00	→	1-131-411-00	1-131-348-00
2.2	1-131-424-00	–	1-131-419-00	–	1-131-414-00	1-131-355-00	1-131-349-00
3.3	–	1-131-422-00	–	1-131-417-00	1-131-362-00	1-131-356-00	1-131-350-00
4.7	1-131-425-00	–	1-131-420-00	1-131-369-00	1-131-363-00	1-131-357-00	1-131-351-00
6.8	–	1-131-423-00	1-131-376-00	1-131-370-00	1-131-364-00	1-131-358-00	1-131-352-00
10	1-131-426-00	1-131-383-00	1-131-377-00	1-131-371-00	1-131-365-00	1-131-359-00	1-131-353-00
15	1-131-390-00	1-131-384-00	1-131-378-00	1-131-372-00	1-131-366-00	1-131-360-00	–
22	1-131-391-00	1-131-385-00	1-131-379-00	1-131-373-00	1-131-367-00		
33	1-131-392-00	1-131-386-00	1-131-380-00	1-131-374-00			
47	1-131-393-00	1-131-387-00	1-131-381-00	–			
68	1-131-394-00	1-131-388-00	–	–			
100	1-131-395-00	–	–	–			



TANTALUM CAPACITORS

CAP. (μF)	RATING 3 VOLT. PART No.	6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	20 VOLT. PART No.	35 VOLT. PART No.
0.033						1-131-273-00
0.047						1-131-274-00
0.068						1-131-275-00
0.1						1-131-276-00
0.15						1-131-277-00
0.22			–	–	1-131-262-00	1-131-278-00
0.33			–	–	1-131-263-00	1-131-279-00
0.47			1-131-169-00	–	1-131-264-00	1-131-280-00
0.68			–	1-131-258-00	1-131-265-00	1-131-281-00
1.0			1-131-254-00	–	1-131-266-00	1-131-282-00
1.5		1-131-250-00	–	–	1-131-267-00	1-131-283-00
2.2		–	–	1-131-259-00	1-131-268-00	1-131-284-00
3.3		–	1-131-255-00	–	1-131-269-00	–
4.7		1-131-251-00	1-131-171-00	–	1-131-270-00	–
6.8		–	–	1-131-260-00	1-131-271-00	–
10	–	–	1-131-256-00	–	1-131-272-00	–
15	–	1-131-252-00	–	1-131-261-00		
22	–	–	1-131-257-00	–		
33	1-131-176-00	1-131-253-00	1-131-173-00	–		
47	1-131-288-00	1-131-174-00	–	–		
100	1-131-177-00					

ELECTROLYTIC CAPACITORS

CAP. (μF)	RATING → : Use the high voltage rated one.					
	6.3 VOLT.	10 VOLT.	16 VOLT.	25 VOLT.	35 VOLT.	50 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.47					→	1-121-726-00
1.0					→	1-121-391-00
2.2					→	1-121-450-00
3.3	→	→	→	1-121-392-00	→	1-121-393-00
4.7	→	→	→	1-121-395-00	→	1-121-396-00
10	→	→	1-121-651-00	1-121-398-00	→	1-121-738-00
22	→	→	1-121-479-00	1-121-480-00	1-121-662-00	1-121-152-00
33	→	→	1-121-403-00	1-121-404-00	1-121-652-00	1-121-405-00
47	→	1-121-352-00	1-121-409-00	1-121-410-00	1-121-653-00	1-121-411-00
100	→	1-121-414-00	1-121-415-00	1-121-416-00	1-121-357-00	1-121-417-00
220	1-121-419-00	1-121-420-00	1-121-421-00	1-121-422-00	1-121-261-00	1-121-423-00
330	1-121-751-00	1-121-805-00	1-121-521-00	1-121-654-00	1-121-655-00	1-121-656-00
470	1-121-424-00	1-121-425-00	1-121-426-00	1-121-733-00	1-121-361-00	1-121-810-00
1000	–	1-121-736-00	1-121-245-00	1-121-657-00	1-121-388-00	1-123-061-00
2200	1-121-658-00	1-121-659-00	1-121-660-00	1-123-067-00	1-121-984-00	–
3300	1-121-661-00	1-123-075-00	1-123-071-00	–	–	–

CAP. (μF)	100 VOLT.	160 VOLT.	250 VOLT.	350 VOLT.
	PART No.	PART No.	PART No.	PART No.
0.47	–	–	–	–
1.0	1-123-249-00	1-123-252-00	1-123-003-00	1-121-168-00
2.2	1-123-250-00	1-123-026-00	–	1-123-028-00
3.3	1-121-995-00	–	1-123-004-00	1-123-006-00
4.7	1-123-255-00	1-121-246-00	1-121-759-00	1-123-007-00
10	1-121-126-00	1-121-999-00	1-123-254-00	1-123-008-00
22	1-121-996-00	1-123-253-00	1-123-005-00	1-123-022-00
33	1-121-997-00	1-121-757-00	–	–
47	1-123-251-00	1-121-919-00	–	–
100	1-123-084-00	–	–	–

CERAMIC CAPACITORS

CAP. (pF)	RATING 50 VOLT. PART No.	CAP. (pF)	50 VOLT. PART No.	CAP. (pF)	50 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001	1-102-074-00
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012	1-102-118-00
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015	1-102-119-00
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018	1-102-120-00
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022	1-102-121-00
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027	1-102-122-00
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033	1-102-123-00
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039	1-102-124-00
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047	1-102-125-00
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056	1-102-126-00
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068	1-102-127-00
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082	1-102-128-00
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01	1-102-129-00
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022	1-101-005-00
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047	1-101-006-00
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00		
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00		
16	1-102-952-00	110	1-102-815-00				
18	1-102-953-00	120	1-102-816-00				
20	1-102-958-00	130	1-101-081-00				

0.001μF = 1,000pF

CERAMIC (SEMICONDUCTOR) CAPACITORS

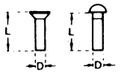
CAP. (μF)	RATING → : Use the high voltage rated one. 25 VOLT. PART No.	50 VOLT. PART No.	CAP. (μF)	25 VOLT. PART No.	50 VOLT. PART No.
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00
0.0015		1-161-041-00	0.027	1-161-018-00	1-161-056-00
0.0018		1-161-042-00	0.033	1-161-019-00	1-161-057-00
0.0022		1-161-043-00	0.039	1-161-010-00	1-161-058-00
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00
0.0033	→	1-161-045-00	0.056	→	1-161-060-00
0.0039	→	1-161-046-00	0.068	→	1-161-061-00
0.0047	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00
0.0056	→	1-161-048-00	0.1	1-161-025-00	1-161-063-00
0.0068	→	1-161-049-00			
0.0082	1-161-012-00	1-161-050-00			
0.01	1-161-013-00	1-161-051-00			
0.012	→	1-161-052-00			
0.015	1-161-015-00	1-161-053-00			

1/4 WATT CARBON RESISTORS

Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-476-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-477-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-478-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-479-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-480-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-481-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-482-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-483-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-484-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-485-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-486-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-487-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

HARDWARE NOMENCLATURE

Screw: – P 3 x 10
- L: Length in mm
- D: Diameter in mm
- Type of head
- Indicated slotted-head only.
- Unless otherwise indicated, it means cross-recessed head (Phillips type).



Nut, Washer, Retaining ring:
N 3
- Diameter of usable screw or shaft
- Reference designation

Reference Designation	Shape	Description	Remarks
		SCREWS	
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		brazier-head screw	

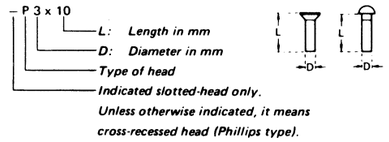
Reference Designation	Shape	Description	Remarks
		SELF-TAPPING SCREWS	
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
		SET SCREWS	
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
		NUT	
N		nut	
		WASHERS	
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
		RETAINING RINGS	
E		retaining ring	
G		grip-type retaining ring	

1/4 WATT CARBON RESISTORS

Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-476-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-477-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-478-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-479-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-480-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-481-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-482-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-483-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-484-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-485-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-486-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-487-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

HARDWARE NOMENCLATURE

Screw:



Nut, Washer, Retaining ring:

Reference Designation	Shape	Description	Remarks
SCREWS			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		brazier-head screw	

Reference Designation	Shape	Description	Remarks
SELF-TAPPING SCREWS			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
SET SCREWS			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
NUT			
N		nut	
WASHERS			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
RETAINING RINGS			
E		retaining ring	
G		grip-type retaining ring	

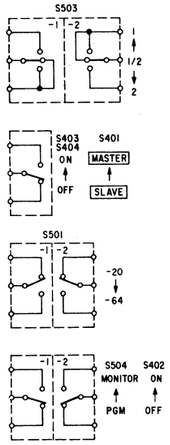
9-950-959-12

Sony Corporation
© 1982

Printed in Japan
1982.06015

MOUNTING DIAGRAM

—master module—



D	Q. IC
	503 504
	501 502
	IC405
	IC501
403	
402	
	IC402
	IC503
401	401
404	IC404
	402
	IC502
409	410
408	407
406	405
	IC403
412	411
414	413
416	415
	IC401

【MONITOR BOARD】 【LINE BOARD】 【MOTHER BOARD】 【TRAN

【HEADPHONE BOARD】

【PFL BOARD】

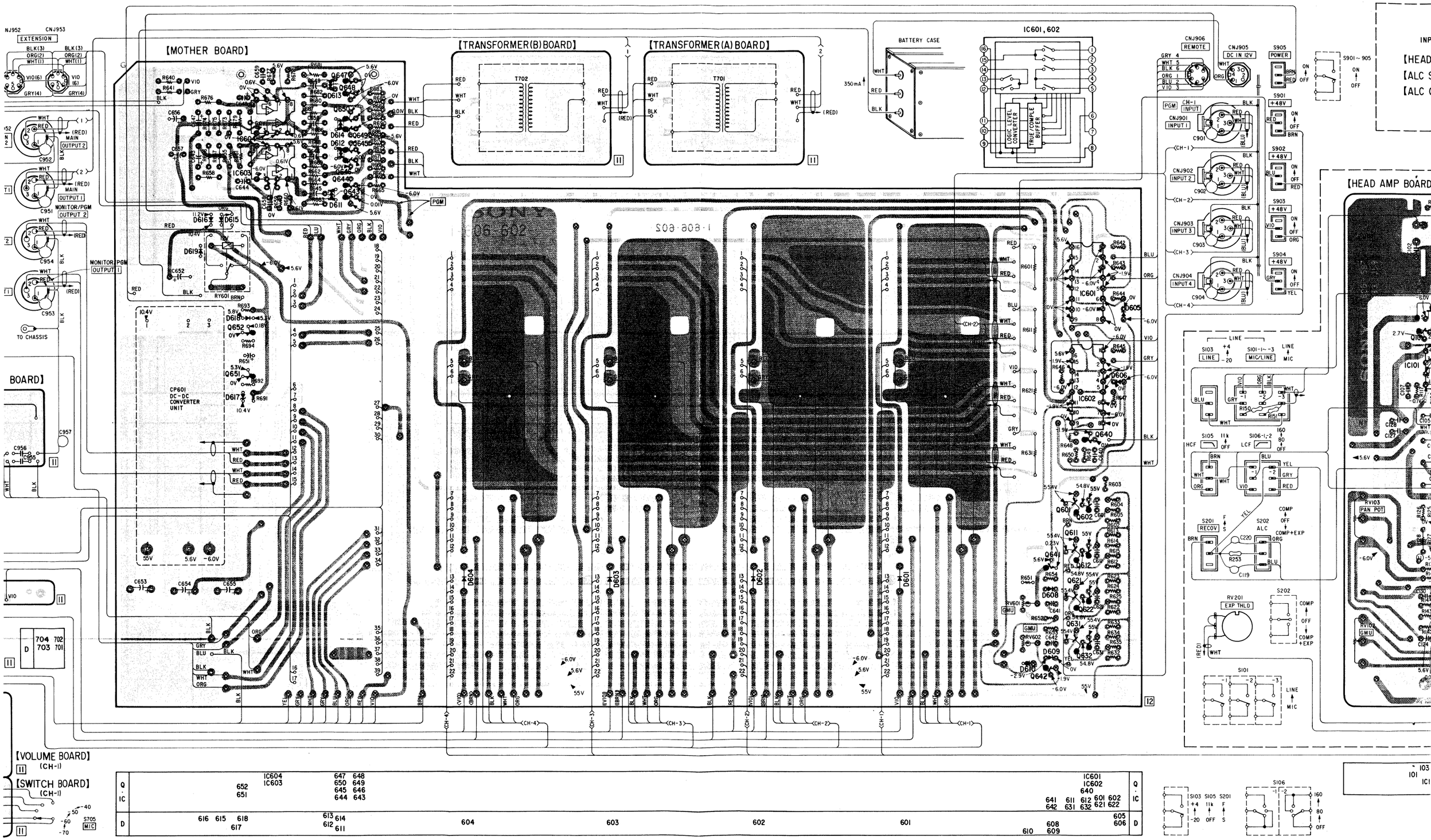
【LED BOARD】

【METER BOARD】

D	Q
801	803 802 801

【VOLUME BOARD】(CH-4) 【SWITCH BOARD】(CH-4)
【VOLUME BOARD】(CH-3) 【SWITCH BOARD】(CH-3)
【VOLUME BOARD】(CH-2) 【SWITCH BOARD】(CH-2)
【VOLUME BOARD】(CH-1)
【SWITCH BOARD】(CH-1)

Q. IC			
	652 651	IC604 IC603	647 648 650 649 645 646 644 643
D	616 615 618 617	613 614 612 611	604


11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
【MOTHER BOARD】
【TRANSFORMER(B)BOARD】
【TRANSFORMER(A)BOARD】
BATTERY CASE
IC601, 602
【HEAD AMP BOARD】
【VOLUME BOARD】
(CH-1)
【SWITCH BOARD】
(CH-1)
CP601
DC-DC
CONVERTER
UNIT
EXTENSION
CNJ952
CNJ953
TO CHASSIS
MONITOR/PGM
OUTPUT 2
MONITOR PGM
OUTPUT 1
MAIN
OUTPUT 2
MAIN
OUTPUT 1
PGM
T702
T701
350mA
LOGIC LEVEL CONVERTER
TRUE/COMPLE BUFFER
CNJ906
REMOTE
CNJ905
DC IN 12V
S905
POWER
S901 ~ 905
CNJ901
INPUT 1
CNJ902
INPUT 2
CNJ903
INPUT 3
CNJ904
INPUT 4
S901
+48V
S902
+48V
S903
+48V
S904
+48V
LINE
MIC/LINE
S105
HCF
S106
LCF
S201
RECOV
S202
ALC
COMP+EXP
RV201
EXP THLD
RV103
PAN POT
S101
S705
MIC
Q
IC
D
IC604
IC603
652
651
647 648
650 649
645 646
644 643
IC601
IC602
640
641 611 612 601 602
642 631 632 621 622
616 615 618
617
613 614
612 611
604
603
602
601
610
608
609
605
606

19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34

A B C D E F G H I J

CH-4
INPUT MODULE ASS'Y
【HEAD AMP BOARD】(CH-4)
【ALC SIGNAL BOARD】(CH-4)
【ALC CONT BOARD】(CH-4)

CH-3
INPUT MODULE ASS'Y
【HEAD AMP BOARD】(CH-3)
【ALC SIGNAL BOARD】(CH-3)
【ALC CONT BOARD】(CH-3)

CH-2
INPUT MODULE ASS'Y
【HEAD AMP BOARD】(CH-2)
【ALC SIGNAL BOARD】(CH-2)
【ALC CONT BOARD】(CH-2)

【HEAD AMP BOARD】(CH-1)

【ALC SIGNAL BOARD】(CH-1)

【ALC CONT BOARD】(CH-1)

IC601 IC602 640 641 611 612 601 602 642 631 632 621 622		Q・IC
605 606 602 601 608 609 610		D

103 101 102 IC102 IC101 IC104 IC103	Q・IC

IC303 IC304 IC301 IC302 IC305	IC

206 208 IC205 211 209 IC204 212 207 205 203 IC203 IC202 202 204 201 IC201 210	Q・IC
204 215 210 208 207 202 213 203 209 201 212 211	D

SCHEMATIC DIAGRAM

– input module –

【SWITCH BOARD】

【HEAD AMP BOARD (1/2)】

【ALC CONT BOARD】

【ALC SIGNAL B…】

Q101, 102 2SC2014
FIRST DIFFERENTIAL AMP

Q103 2SK193
CURRENT REG.

IC101 NJM4560D
HEAD AMP
HI-CUT FILTER

IC102 NJM4560D
HI-CUT FILTER
LOW CUT FILTER

IC201 μPC4557C
LOG AMP
CLIPPER

Q201 2SD1012
COMPRESSOR SIGNAL SWITCHING

Q207 2SB808
CURRENT BOOSTER

D201, 202 ISS199
LOG CORRECT

IC202 μPC4557C
FULL WAVE RECTIFIER

Q202, 203 2SD1012
CURRENT BOOSTER

Q204, 205 2SD1012
HOLDING RECOVERY

D203, 204 ISS199
SATURATION STOP

IC203 μPC4557C
HOLD AMP
GR DRIVE

Q206 2SD1012
COMPRESSOR SIGNAL SWITCHING

IC204 μPC4557C
LEVEL DET
COMPARATOR

Q210 2SD1012
EXPANDER SIGNAL SWITCHING

IC205 μPC4557C
RECT
COMPARATOR

Q208 2SD1012
EXPANDER SIGNAL SWITCHING

Q211 2SB808
CURRENT BOOSTER

Q212 2SB808
HOLDING RECOVERY

D211, 212 RD3.9E CLIP

D213 ISS199 SATURATION STOP

D215 ISS199 Q209 2SB808 D207-210 ISS199
—— SWITCHING —— LOGIC

9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

A B C D E F G H I J

S105 HCF OFF ON

S106-1 OFF 80 160

S106-2 OFF 80 160

S106-1,-2 LCF

S201 RECOV F S

C220 0.022 R253 3.3k C219 0.022

S202 ALC COMP+EXP OFF COMP

5.6V -6.0V

C117 220/10V

IC104 CX-770A
LOW CUT FILTER/PFL BUS SWITCHING

TO MOTHER BOARD

C118 220/10V

RV102 10k GMU

【BOLUME BOARD】

RV701 10k-B

RV701 CHANNEL FADER

TO MOTHER BOARD

TO MOTHER BOARD

TO INPUT MODULE ASS'Y CH-2 OR INPUT MODULE ASS'Y CH-3 TO CH-4

CP601
DC-DC CONVERTER UNIT

RD27EB x2

ISS82

ERA81-004

ERA81-004

100uH

33/63V 470/10V

0.015 330 IS2076 0.15/16V 13k

15 RD5.1EB 1.5k

10k 62 2SB810 2SC2785 50k

3k 5.6k 220/25V

2SC2562

IC301 NJM4560D
BUFFER AMP

ALC

【ALC SIGNAL BOARD】

IC304 CX-770A
SIGNAL SWITCHING

IC302 NJM4559D
VCA

SAMP

IC305 EGC101
VCA

【HEAD AMP BOARD(1/2)】

IC103 NJM4559D
BUFFER AMP

MAIN OUTPUT 1 PGM

MAIN OUTPUT 2 PGM

TO MOTHER BOARD

RV103 10k-B PAN POT

IC205 2SD1012
G RECOVERY

IC204 ISS199
TION STOP

IC203 μPC4557C
HOLD AMP
GR DRIVE

Q206 2SD1012
COMPRESSOR SIGNAL SWITCHING

IC205 μPC4557C
RECT COMPARATOR

Q208 2SD1012
EXPANDER SIGNAL SWITCHING

SB808
RECOVERY

D215 ISS199 Q209 2SB808 D207-210 ISS199
— SWITCHING — LOGIC

IC303 μPC4557C
ALC CONTROL SIGNAL ADDER
GMU ADDER

VCA GAIN

DL 301

MX-P42

SUPPLEMENT

SUBJECT: BOARD CHANGE INFORMATION

- LINE BOARD
- MOTHER BOARD
- HEAD AMP BOARD
- ALC SIGNAL BOARD
- ALC CONT BOARD

Please file this supplement-1 to your own manual.

(This modification has been done from Serial No. 40161.)

9-950-959-81

Sony Corporation
© 1984

Printed in Japan
1984.6 06